Canada. Statistics bureau
[General publications]
[G-23] Cansim: users' manual
for data retrieval and manipulation.
1969.

CANSIM Users' Manual for Data Retrieval and Manipulation (1972)

(Catalogue 12-531 Occasional)

Amendment 1
(August, 1973)

1. Throughout the manual the terms "MASSAGER output format" and "MASSAGER identifier" are used. These terms should be changed to read "DATABANK output format" and "DATABANK identifier". However, until further notification, the DATABANK format must be retrieved using the term "MASSAGER".

The term MASSAGER is restricted to the MASSAGER manipulative program. This change has been made in the pages which are being replaced. Other pages to which this change should be made are as follows:

page	number of changes
3.4	7 times
Appendix 1	3 times
Appendix 4	once
Appendix 5	twice

2. On page 3.2 (about the middle of the page under "Description") "Note on page 00" should be changed to "Note on page 3.12".

3. On page 3.16

ODISP add GENFORM (Procedure)
and '(NEW, PASS)' (Default)

OVOL add GENFORM (Procedure)
and Omitted (Default)

4. Replace (or insert) the following:

Table of Contents	Newsflash, Appendix 12, and Appendix 13 have been added
Page 1.1	CANSIM is now a registered trademark
Page 2.1	A more recent "Contents of the Data Base" is included
Page 2.2	Retrievals are done by using either the CANSIM identifier or the DATABANK identifier
Page 3.3	General format and Mass-Directory have been added
Page 3.5	Security - series are now either PUBLIC or SECURE, PART-SEC has been eliminated

Page 3.6	A caution has been incorporated under the RENAME option
Page 3.7.1 (new)	Specifications for retrieval of the CANSIM Newsflash
Page 3.8	General and Mass-Directory are included under Format options
Page 3.12	Two error messages have been added
Page 3.13	General and Mass-Directory are included
Page 3.14	The usage of CANR4HB is clarified
Page 3.15	Newsflash, General, and Mass-Directory are included
Page 4.1	Use of the JOBLIB card is described, and a footnote has been added
Page 5.1	Requests for retrievals are no longer batched and executed overnight, CANSIM is now on-line
Page 6.1	Mass-Directory and General are included
List of Appendices	Two new appendices have been added (12 and 13)
1st page of Appendix 3	A new option of Directory Security has been added
3rd page of Appendix 3	Directory Security has been added
4th page of Appendix 3	Various changes have been made
Appendix 6	New sample printout
Appendix 7	New sample printout
Appendix 8	New sample printout
Appendix 12 (new)	Record Layout for General Format
Appendix 13 (new)	Record Layout and sample printout of Mass-Directory

TABLE OF CONTENTS

INTRODUCTION

CANSIM[1] is designed to provide efficient and economic management of a large volume of time-series data. The programs for data storage, retrieval, and manipulation comprising the system were written for an IBM computer. Management, control, and maintenance of the system are the responsibility of Statistics Canada but accuracy of the included data is the responsibility of the agency compiling it.

Operation of the programs is supervised by the General Time Series Staff.

The subject of this manual is the retrieval sub-system of CANSIM which provides for the retrieval of data stored in the base on printouts, or in machine readable formats (tape or in interim direct access storage) suitable for input to data manipulative or table formatting routines.

Release of this revised manual signals the completion of Phase 2-1 in the development of CANSIM, the computerized time series data bank of Statistics Canada. Phase 1 programs, which comprise the data storage and housekeeping subsystems,[2] and a minimal retrieval capability, have been operational since July 1969 when the availability of data from CANSIM was first publicly announced.

An important option planned for inclusion in Phase 2, which was postponed, is the writing of an integrated manipulative language for use with terminals to the CANSIM computer. Consideration is being given to the acquisition of one or more languages already developed and in use at computer service bureaus.

The data base and its supporting software, now at Computer Services Bureau, may be accessed via terminals (either a card reader-printer, or a typewriter terminal). The General Time Series Staff currently receives and actions all requests for those who have no terminal access to CANSIM.

A description of the data base (including record formats and explanation of codes) is given in Section 2. Also included are descriptions of the matrix and series numbering system.

Section 3 is a description of the command languages used to retrieve the data, for manipulation or as computer printouts, and of the job control language. Samples of output formats are shown in Appendices.

Section 4 gives a description of the MASSAGER program and other existing utilities which are available for use with data retrieved from CANSIM.

Section 5 covers the use of the system by Statistics Canada, by other government agencies and by private customers.

The final section, Section 6 is a glossary of all words used in the command language or in the control cards.

Statistics Canada again acknowledges the substantial contribution made to CANSIM development by the Economic Council of Canada. The Bank of Canada also has contributed generously through the support and distribution of the MASSAGER program which is the manipulative capability most widely used in conjunction with CANSIM outside Statistics Canada.

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[1] CANSIM is a registered trademark of Statistics Canada under the Trade Marks Act, and applies only to the full data base and related specialized programs.

[2] A companion manual is available from Statistics Canada entitled "CANSIM: Operation Manual for Data Entry" (Catalogue 12-530 Occasional – $1.00) which deals with the clerical and machine procedures used for data entry, up-date and revision.

DESCRIPTION OF THE DATA BASE

General

CANSIM contains time series, for the most part published by Statistics Canada. The contents of the data base as of February, 1973 are shown in Table 1. This table is kept current and is printed periodically in the Canadian Statistical Review (Catalogue 11-003). For all series historical data are in the data base from 1946, or barring this, from the earliest year for which continuous data are available.

Contents of CANSIM Data Base, by Source (after Reorganization), as of February, 1973

Source \ Number of Series	Divisions			Branch			Field			Total		
	Total	Active	In-active (termi-nated)	Total	Active	In-active (termi-nated)	Total	Active	In-active (termi-nated)	Total	Active	In-active (termi-nated)
Business Statistics Field							**29,219**	**28,146**	**1,073**			
Industry Statistics Branch				**12,786**	**12,398**	**388**						
Agriculture	7,003	6,914	89									
Transportation and Utilities	127	124	3									
MAPID	5,045	4,881	164									
Construction and Cap. Expend.	189	189										
Merchandising	422	290	132									
General Statistics Branch				**16,433**	**15,748**	**685**						
External Trade	560	481	79									
Prices	3,980	3,468	512									
Labour	6,703	6,653	50									
Business Finance	3,491	3,447	44									
Capital Stocks (CANDIDE)	1,466	1,466										
Financial Institutions	233	233										
Economics and Statistical Integration Field							**4,811**	**4,656**	**155**			
Current Accounts Branch				**4,461**	**4,306**	**155**						
National Income & Expenditure	1,739	1,630	109									
National Output	591	591										
Balance of Payments	854	808	46									
Financial Flows	1,277	1,277										
Structural Accounts Branch				**350**	**350**							
Productivity	350	350										
Household and Institutional Statistics Field							**1,633**	**1,633**				
Household Statistics Branch				**1,521**	**1,521**							
Labour Force Survey	1,521	1,521										
Institutions and Public Finance Branch				**39**	**39**							
Health and Welfare	39	39										
Census Branch				**73**	**73**							
Population	73	73										
Total STC										**35,663**	**34,435**	**1,228**
Outside STC							**1,103**	**1,002**	**101**			
Total All Source										**36,766**	**35,437**	**1,329**

Structure

Each time series in the CANSIM base is entered as part of a matrix of similar files arranged in hierarchical fashion. An illustration might be a population table arranged as follows:

September, 1972

Table 1: population, by province (thousands)

year and month[1]	Canada	Nfld.	P. E. I.	N. S.	N. B.	Que.	Ont.	Man.	Sask.	Alta.	B. C.	Yukon	N. W. T.
1970 June	21,297	517	110	782	627	6,013	7,551	983	941	1,595	2,128	17	33
1971 June	21,569	522	112	789	635	6,028	7,703	988	926	1,628	2,185	18	35
1972 June	21,830	532	113	794	642	6,059	7,825	992	916	1,655	2,247	19	36
1970 Apr.	21,244	516	110	780	626	6,005	7,528	981	942	1,589	2,118	17	32
June	21,297	517	110	782	627	6,013	7,551	983	941	1,595	2,128	17	33
July	21,324	518	110	783	628	6,015	7,566	983	940	1,597	2,134	17	33
Oct.	21,400	519	111	784	628	6,021	7,613	982	933	1,607	2,152	17	33
1971 Jan.	21,465	519	111	785	630	6,017	7,656	984	927	1,616	2,168	18	34
Apr.	21,523	521	111	788	633	6,022	7,683	986	926	1,623	2,178	18	34
June	21,569	522	112	789	635	6,028	7,703	988	926	1,628	2,185	18	35
July	21,595	523	112	790	635	6,032	7,717	989	927	1,629	2,188	18	35
Oct.	21,668	526	112	791	638	6,041	7,748	989	924	1,638	2,206	19	36
1972 Jan.	21,731	528	112	793	640	6,047	7,777	989	919	1,644	2,227	19	36
Apr.	21,788	530	113	793	642	6,056	7,800	991	917	1,650	2,241	19	36
June	21,830	532	113	794	642	6,059	7,825	992	916	1,655	2,247	19	36

[1]As of the first of each month. Source: Estimated population of Canada, by province (91-201), Statistics Canada.

This table appears monthly in the Canadian Statistical Review. In the CANSIM data base, the time series (columns of data) have been restructured:

01 Total Canada

02 Newfoundland

02 Prince Edward Island

02 Nova Scotia

The entire "Table" is called a matrix. The "01" level within the matrix signifies that this time series is the total or summary measure. The "02" levels are thus subordinate in some way. Since data collected as a single time series are almost always interdependent with other data, the matrix arrangement allows a whole set of files to be updated or revised at the same time. Matrices also allow for a greater degree of internal verification of the data entered. For instance, in the above example, the "02" level entries (Provinces) must add to the "01" total level (Canada).

All retrievals are made by either a single number which indicates the matrix and series or the DATABANK number. The numbering scheme is illustrated on the next page in the sample Series Directory.

Reference Documents

Summary Reference Index

The Summary Reference Index as the first of two information sources for CANSIM, provides matrix numbers for groups of time series which appear in, or relate to, existing publications. The publications for which data are currently in the system in full or in large part are listed in the Table of Contents. CANSIM or DATABANK numbers may be used for accessing and retrieving matrices or series on the CANSIM base.

The DATABANK series identification numbers which also appear in the directory are not to be confused with CANSIM identification numbers. The retrieval in DATABANK and UTILITY formats creates a tape with DATABANK numbers to permit use of existing manipulative programs such as MASSAGER or MATOP.

Series Directory

The CANSIM Series Directory contains matrix and series titles and descriptive detail for series available from CANSIM (see sample below). It is used in conjunction with the Summary Reference Index to order series from Statistics Canada.

The matrix titles, sources and notes included in this Directory cover all time series in the CANSIM base as of the date of the printout. Supplements are released when required.

2. RSC2: RETRIEVAL FORMAT – Concluded

Option	Column(s)	Contents	Description
	17-23	GENERAL	Creates a file on tape or disk containing data and all information stored in CANSIM for the series retrieved. It is intended for use with the CANSIM Alphatext Interface System (CAIS). For record format see appendix 12.
	17-30	MASS-DIRECTORY	Produces a printout of the DATABANK number and its equivalent CANSIM identifier (Matrix and series number). For record format and sample printout see appendix 13.
2	33	–	**DIAGNOSTIC REQUEST**
			This option permits editing of CANSIM retrieval command cards without retrieving any series. Since the CANSIM base is not accessed, editing is syntactical only (can not check for missing series, proper starting dates, etc.).
		*	Enter * if you wish a diagnostic check only.
		Blank	Leave blank if you wish retrieval to continue provided **no** errors are found.
3	34	–	**ACCEPTING ERRORS**
			Retrieval of series is normally terminated when job encounters errors such as missing series or no match on dates. This option may be used to continue a job even though error(s) are encountered.
		*	Enter * if you wish job to continue although error(s) are encountered.
		Blank	Leave blank if you wish jobto terminate on encountering an error.
4	35	–	**TYPE OF IDENTIFIER**
			Series from CANSIM may be retrieved with either the DATABANK or CANSIM series number. Only **one** identification may be used within a job.
		M	Enter M, when using DATABANK series number.
		Blank	Leave blank, when using CANSIM identification number.
	36-77	Blank	Reserved.
	78-80	002-999, or Blank	Card sequence number, if used.

3. RSC3: SERIES IDENTIFICATION AND OUTPUT CONTROL — Continued

Option	Column(s)	Contents	Description
			CANSIM Enter the **first** series in range in columns 18-37 of this card, and the **last** series in range in columns 18-37 of the next card (the last series number must be the **only** information other than "RSC3" and card sequence number). **CAUTION**: (1) When a range of series is to be retrieved from a single matrix, the first and last series in range must be in the matrix. (2) When RANGE option is used in conjunction with the FROM-TO matrix option, no check is made whether the first or last series in range is in any of the requested matrices.
		Blank	Leave blank if ALL or RANGE option not used. Identify the series to be retrieved in columns 18-37.
7	18-37	—	**SERIES IDENTIFICATION**
	18-37	CANSIM number	Enter series number, left justified. The decimal, or period, is part of the series number so it **must** be entered — refer to Series Directory. **CAUTION**: Column 35 of **RSC2** must be **blank**.
	18-25	DATABANK number	Enter alphabetic portion in column 18 and numeric portion right justified. **CAUTION**: There must be an "M" in column 35 of **RSC2** card, and FROM-TO matrix fields **must** be blank.
		Blank	Must be **blank** when used with ALL option.
8	38	—	**TABLE FORMAT — PAGE INDICATOR** This option applies only to series retrieved in Table format. It permits users to control the number of series (columns) to less than the standard seven per page. Cannot be used with RANGE, ALL, or FROM-TO matrix option.
		*	To control number of series to less than seven, enter * on any card which identifies the last series to appear on a page.
		Blank	Series are printed continuously, seven series per page.
9	39-45	—	**SECURITY** Series in CANSIM are classified as either PUBLIC or SECURE (see Series Directory). PUBLIC series are available to the public with no restriction; however, some of the series may contain one or more SECURE data points. All data points in a SECURE series are restricted; the appropriate "Security Word" must be obtained from the data source — refer to the Summary Reference Index or Series Directory for the Inquiries List.
	39-44	Public	The word "PUBLIC" must be entered, on the first RSC3 card, to retrieve any non-secure data points.
	39-45	"Security Word"	The "Security Word" must be entered to retrieve any secure data points (left justified).

3. RSC3: SERIES IDENTIFICATION AND OUTPUT CONTROL — Concluded

Option	Column(s)	Contents	Description
			CAUTION: The data source is notified each time secure data are retrieved or retrieval is attempted.
		Blank	Blanks are not permitted on the first RSC3 card of a job. On subsequent cards, blank is interpreted as "no change from previous card".
10	46-57	—	**TIME PERIOD OF DATA TO BE RETRIEVED** — This option controls the number of observations to be retrieved for a series, by means of a START and END DATE. The date is described as YYMMDD where: YY — last 2 digits of the year. MM — 01 for January, 02 for February, etc. DD — 2 digit day of the month, 01-31. Refer to Series Directory for START DATE.
	46-51	YYMMDD	**START DATE** — Indicates the date from which data are to be retrieved. For annual series, enter only the YY. For quarterly and monthly series, enter only the YYMM. Series with frequency greater than monthly, enter YYMMDD. **NOTE**: To retrieve a single data point, repeat START DATE in END DATE (columns 52-57).
		******	Enter **6** asterisks to retrieve data from the earliest date available.
		Blank	Blanks are not permitted on the first RSC3 card of any job. On subsequent cards, blank is interpreted as "no change from previous card".
	52-57	YYMMDD	**END DATE** — Indicates the date to which data are to be retrieved. Complete as per START DATE.
		******	Enter **6** asterisks to retrieve data to the most current date available.
		Blank	Blanks are not permitted on the first RSC3 card of any job. On subsequent cards, blank is interpreted as "no change from previous card".
11	58-65	—	**RENAME** This option allows the user to change the DATABANK number on outputs to a more meaningful name. The use of this option with Table format replaces the column number. See Appendix 6.
		Any characters	Enter any name you desire. Must be left justified. Embedded blanks are allowed.
		Blank	Leave blank if **no** change desired.
			CAUTION: May be used only when an RSC3 card is supplied for each series.
	66-69	Numeric	**Number of series.** Used in conjunction with ALL option — see column 17.
	70-77	Blank	Reserved.
	78-80	003-999, or Blank	Card sequence number, if used.

CANSIM NEWS FLASH

The **CANSIM NEWS FLASH** provides information on up-dates to series on **CANSIM**, and any news of interest to users. This file is available on-line and can be retrieved daily or less frequently for any specific time period.

One control card is required, the specifications are as follows:

Column(s)	Contents	Description
1 - 10	PRINT = NMSG	Required keyword
11	Blank	
12 - 17	YYMMDD	**FROM** date
17 - 22	YYMMDD	**TO** date
23 - 80	Blank	Reserved

If the logo is not required, the control card is as follows:

Column(s)	Contents	Description
1 - 10	PRINT = NMSG	Required keyword
11	Blank	
12 - 17	YYMMDD	**FROM** date
17 - 22	YYMMDD	**TO** date
23 - 25	,NL	Required
26 - 80	Blank	Reserved

RETRIEVE SERIES FROM CANSIM (RSC 1, 2, AND 4)

DATE

R S C 1 (1-4)

(5-8) CANSIM USER CODE

(9-27) RESERVED

(78-80) CARD SEQ.

(28-52) JOB TITLE

(53-77) JOB TITLE

R S C 2 (1-4)

R E T R I E V E I N (5-16)

(17-32) FORMAT

(33) DIAGNOSTIC REQUEST OPTION

(34) ACCEPTING ERROR OPTION

(35) TYPE OF IDENTIFIER

(36-77) RESERVED

(78-80) CARD SEQ.

FORMAT OPTIONS –

- MASSAGER-D
- MASSAGER-S
- UTILITY
- TABLE
- DISPLAY
- GENERAL
- RANDOM-D
- RANDOM-S
- RE-ENTRY
- PUBLICATION
- MASS-DIRECTORY

These four format options are restricted to Annual, Quarterly, Monthly and Weekly series.

R S C 4 (1-4)

(5-77) RESERVED

(78-80) CARD SEQ.

2700-30: 15-6-72

matter area responsible for the data, obtain the correct reference date, correct retrieval card and resubmit.

'R – END DATE INCOMPATIBLE, SUBSTITUTING DATE--------' – The supplied end date does not match any reference date for this series. If the substituted end date is incorrect, check with the subject matter area responsible for the data, obtain the correct reference date, correct retrieval card and resubmit.

'R – START-END DATE OUT OF RANGE, NO DATA RETRIEVED' – The supplied start-end dates are either both prior to or both after the period of data available for this series. Check the Series Directory for the start date, correct the retrieval card and resubmit.

'R – NO DATA IN SERIES' – The series header information has been entered on the base, however, no data is currently available. Check with General Time Series Staff for data availability.

'W – ALL SERIES NOT RETRIEVED. LIMITED TO NUMBER SPECIFIED' – Number of series retrieved limited to quantity specified in columns 66-69 of RSC3 card.

'R – REPORT FREQUENCY NOT COMPATIBLE WITH MASSAGER' – The MASSAGER format permits only Annual, Quarterly, Monthly or Weekly series to be retrieved. If an attempt is made to retrieve a series with another frequency, the request is ignored and this message printed out.

'R – NUMBER OF DATA POINTS EXCEEDS LIMIT' – The number of data points allowed by the DATABANK format for one series exceeds 1200 in double precision or 2400 in single precision.

'R – NUMBER OF RECORDS ON RANDOM FILE EXCEED 3500' – Reduce the number of series requested – see explanatory note. If the retrieval request cannot be split up contact the Supervisor, CANSIM programming unit, Computer Systems Development Division, Statistics Canada, Telephone 992-7967 or 996-5366, area code 613.

'R – NUMBER OF SERIES IN RANDOM FILE EXCEED 2298' – Reduce the number of series requested – see explanatory note. If the retrieval request cannot be split up contact the Supervisor, CANSIM programming unit, Computer Systems Development Division, Statistics Canada, Telephone 992-7967 or 996-5366, area code 613.

Note: The upper limit for RANDOM file is either 2298 series **or** 3,500 records. The number of records per series depends on the number of data points retrieved. The first record of any series accommodates 112 data points, and 122 on subsequent records. For data in double precision reduce number of data points to 56 and 61 respectively.

'JOB TERMINATED – SYSTEM ERROR' – Save all printouts associated with the run and contact the Supervisor, CANSIM programming unit, Computer Systems Development Division, Statistics Canada 992-7967 or 996-5366, area code 613.

'R – SERIES FROZEN, DATA NOT AVAILABLE TO USERS' – the series requested is temporarily not available. Retrieve the **CANSIM NEWS FLASH** or check with the data source (Inquiries List) to find out when it will be released.

'R – MATRIX FROZEN, DATA NOT AVAILABLE TO USERS' – the matrix requested is temporarily not available. Retrieve the **CANSIM NEWS FLASH** or check with the data source (Inquiries List) to find out when it will be released.

Catalogued Procedure for the CANSIM Retrieval Package

STATEMENT	USAGE
PROC	is the first control statement in the catalogued procedure and is used to assign default values to the symbolic parameters in the procedure. (CANSIM retrieval procedures are: DIAGNOS, DIRECTR, UTILITY, GENFORM, TABLE, PUBLICT, DISPLAY, REENTRY, MASFORM, RANFORM, and MASSDIR).
EXEC	PGM=CANRET(XX), specifies the program name. 'XX' specifies the version number.
STEPLIB DD	DSN=STC63.P536.PROGLB, partitioned data set containing the CANSIM load library.
CANROB DD	Temporary work file.
CANR1AB DD	DSN=STC63.P536.XXXX2 permanent CANSIM file.
CANR2B DD	SYSOUT=A, a sequential message data set, for displaying edited CANSIM retrieval commands and generated retrieval commands, and Massager Directory format.
CANR2D DD	DSN=&&EDITRC, a sequential work data set containing edited CANSIM retrieval commands.
CANR2E DD	DSN=&&GENRC, a sequential work data set containing generated CANSIM retrieval commands.
CANR2H DD	DSN=STC63.P536.XXXX3 permanent CANSIM file.
CANR3CA DD	SYSOUT=A, defines a sequential data set for output of the Random format availability index; required by the RANFORM procedure.
CANR3CB DD	DSN=&&RANDIR, defines a random access data set for the Random format directory; required by the RANFORM procedure.
CANR3CC DD	DSN=&&RANSER, defines a random access data set for the Random format file; required by the RANFORM procedure.
CANR3E DD	Temporary work file.
CANR3F DD	SYSOUT=A, defines a sequential data set for output of the CANSIM series directory; required by the DIRECTR procedure.
CANR3H DD	DSN=UTILITY, defines a sequential data set for Utility format; required by the UTILITY procedure.
CANR3I DD	DSN=&&GENFM, defines a sequential output data set for the General format; required by the GENFORM procedure.
CANR3K DD	DSN=&&BDAM, defines a temporary random access work data set for Table format: required by the TABLE procedure.
CANR3M DD	SYSOUT=A, defines a sequential data set for output of Table format; required by the TABLE procedure.
CANR4D DD	SYSOUT=B, defines a sequential data set for output in Re-entry format; required by the REENTRY procedure.
CANR4E DD	DSN=&&PUBCAT, defines a sequential data set for Publication format; required by PUBLICT procedure.

Catalogued Procedure for the CANSIM Retrieval Package — Concluded

STATEMENT	USAGE
CANR4F DD	SYSOUT = A, defines the output for Display format; required by the DISPLAY procedure.
CANR4HA DD	DSN = MASSAGER, defines a sequential data set for Massager format; required by the MASFORM procedure.
CANR4HB DD	SYSOUT = A, defines a sequential data set for output of the Random and Databank format availability index; required by the MASFORM procedure.
CANR8A DD	DSN = STC63.P536.XXXX4, permanent CANSIM file.
CANR9AA DD	DSN = STC63.P536.XXXX5, permanent CANSIM file.
CANR9AB DD	SYSOUT = A, defines a sequential message data set for output of the error messages.
CBASE DD	DSN = STC63.P536.CANSIM, defines a random access data set for the CANSIM base.
SYSOUT DD	SYSOUT = A, defines a sequential data set for output of system messages.
SYSUDUMP DD	SYSOUT = A, defines a sequential data set for output of a core dump in problem runs.

Use of CANSIM Catalogued Procedure

STATEMENT	USAGE
JOB	THIS statement initiates the job. The TIME and REGION parameters must be specified.
COPY	THIS statement instructs the operating system to load the CANSIM catalogued procedure. It must precede the EXEC statement. /*COPY CATLG.STC63.COPYLB (procedure name)
EXEC	THIS statement specifies the procedure name to be executed and the output data set optional parameters. // EXEC procedure name [,see procedure options]
SYSIN DD	THIS statement defines the control data set. The statement should be //SYSIN DD * if the control statements are contained in a card file.
/*	END of card input
//	END of job

Procedure Names:

DISPLAY	Display format
MASFORM	Massager format
RANFORM	Random format
PUBLICT	Publication format
REENTRY	Re-entry format
UTILITY	Utility format
TABLE	Table format
DIAGNOS	Diagnostic run
NEWSFL	News flash
GENFORM	General format
MASSDIR	Massager Directory format

Procedure Options

[,option name1 = option1, option name2 = option2, ...,option nameN = optionN]

ODSN THIS parameter is used to modify the output data set name. If not specified it uses the default name.

PROCEDURE	DEFAULT
MASFORM	MASSAGER
RANFORM	'&&RANSER'
PUBLICT	'&&PUBCAT'
UTILITY	UTILITY
GENFORM	'&&GENRC'

DDSN THIS parameter is used to modify the directory data set name in the RANFORM procedure. If not specified it will default to '&&RANDIR'.

OUNIT THIS parameter is used to specify the physical unit used for the output data set. If not specified the default unit will be used.

PROCEDURE	DEFAULT
MASFORM	'(9TRACK,,DEFER)'
RANFORM	SYSDA
PUBLICT	SYSDA
UTILITY	'(9TRACK,,DEFER)'

MANIPULATIVE PROGRAMS AVAILABLE FOR USE WITH DATA RETRIEVED FROM CANSIM

GENERAL

The following manipulative programs are available to CANSIM users. The JOBLIB card required to access these programs directly at the Computer Services Bureau will be given to on-line users when a CANSIM user code is assigned.

1. DATABANK[1]

The DATABANK program is designed to maintain a large number of economic time series on a magnetic tape. Generally, this restricts the number of series that can be handled efficiently on one tape to about 10,000. The program allows for the addition, deletion and editing of any series. The data can also be listed, indexed and copied onto other tapes. In other words, the program performs those operations which fall into the general class of file maintenance. The system is designed to work with **any** data which is arranged **or** arrangeable in a time series format.

2. MASSAGER[1]

The MASSAGER program carries out statistical manipulations of data, accepts input from DATABANK tapes, CANSIM tapes (in DATABANK format) or from cards. For sample, see Appendix 8.

Retrieved series are arrayed as columns in core storage and by a sequence of "commands" the columns are manipulated as desired. The commands include simple operations on a single series (column) such as square roots, logarithms, etc., and complex operations on several variables or columns such as multiple regressions, plots, etc. A partial list of operators is given in Table 1.

TABLE 1. MASSAGER Operation Codes

01 $\log_e x$	17 index	32 rank values
02 $\log_{10} x$	18 collapse	33 three-group values
03 sin x	19 c + x	34 instrumental variables regression
04 cos x	20 scaling	35 % change
05 x^w	21 x + y	36 weighted moving sum
06 e^x	22 x − y	37 output by variable
07 random no. (0, 1)	23 x*y	38 output by observation
08 dummy (1, 0....)	24 x/y	39 truncation
09 time trend	25 move	40 calls user-supplied subroutine
10 constant term	26 squeeze out	41 user-supplied subroutine XXX1
11 x_t	27 multiple plot	42 user-supplied subroutine XXX2
12 x_{t-k}	28 plot	43 user-supplied subroutine XXX3
13 1/x	29 multiple regression	44 combined operations
14 cumulator	30 three-pass least squares	46 change location
15 c*x	31 nonlinear regression	47 row summation
16 $\sqrt{x}$		

3. MATOP

The MATOP program was originally written in Statistics Canada. Other versions have since been developed with added features. It accepts input from DATABANK tapes, CANSIM tapes or from cards. The data may be entered in memory as columns, rows or as a matrix. The program carries out mathematical and statistical manipulations of data. A partial list of operations is given in Table 2.

[1] DATABANK 73 and MASSAGER 73 which are the latest recognized versions of these two programs will shortly be available with the CANSIM data base at Computer Services Bureau. For a specific date, check with the CANSIM News Flash or the General Time Series Staff.

USE OF THE SYSTEM

The CANSIM system can be used to store time series and for retrieval and manipulation of data. Storage and on-line retrievals of time series is presently restricted to government departments and agencies. Anyone may obtain data from CANSIM in the formats described in Section 3; those without terminal access should submit their requests to the General Time Series Staff.

Job Submission Procedure

All retrieval requests from users without terminal access should be forwarded to the General Time Series Staff and it is the responsibility of the user to ensure that retrieval cards or request forms are prepared as outlined in Section 3 of this manual. If keypunching facilities are not available, arrangements may be made with the General Time Series Staff.

Retrieval Costs

Non-government Users

Less than 1,000 series:

15¢ per series — minimum of $5.00 for TABLE or DISPLAY format
minimum of $25.00 for output on tape (user supplied).

1,000 series or more: computer cost plus 50% (any output).

Government Users

Computer cost plus 10% (any output).

Agreement to Purchase Form

Customers purchasing data on cards or tape may be requested to sign an agreement form. Statistics Canada does not guarantee that data purchased are free from error and its use in any matter is entirely at the risk of the purchaser. Requests for Purchase Agreement forms and enquiries should be directed to General Time Series Staff.

GLOSSARY

Data Base ..... A group of records (individual series) having a common coding and format.

Data Point ..... Refers to a single observation for a series, for example, population of Ontario for the 2nd quarter in 1972.

Diagnostic ..... A syntactical edit of the user supplied retrieval command cards will be carried out. Any serious violations will result in job termination.

Directory ..... A listing of Matrices and Series included in the base is called the Series Directory. Users may obtain these directories from General Time Series Staff.

FORMAT:

Massager-D ..... A file of the requested series in double precision (contains all significant digits held on the data base). This format may be used with manipulative programs such as MASSAGER or MATOP.

Massager-S ..... A file of the requested series in single precision (contains 6 significant digits, if the data point contains more than 6 significant digits use MASSAGER-D). This format may be used with manipulative programs such as MASSAGER or MATOP.

Utility ..... A file of the requested series in a standard general purpose format of Statistics Canada. It can be used as input to MASSAGER, MATOP, X-11 Seasonal Adjustment, FANTOM, GROPE (PLOTTER) and to any program where the input is described by a format card.

Publication ..... A file of the requested series which is used primarily as input to report generating programs to produce publications. It contains pertinent matrix and series information along with the data.

Table ..... This format produces a "working table" printout with which the user may examine the content and detail of the base. A maximum of seven columns (series) may be produced on one page.

Display ..... This format produces a printout of one series per page and contains all the detail on the base.

Re-entry ..... This format produces a card image tape of the requested series which may be used to create a temporary base. Access to the data entry programs of the CANSIM system is required.

Mass-Directory ..... This format produces a printout of the DATABANK number and its corresponding CANSIM identifier.

General ..... A file of the requested series and all information stored in CANSIM for these series. It is intended for use with the CANSIM Alphatext Interface System (CAIS).

Security option ..... Confidentiality of CANSIM is based primarily on code or passwords. The Directory indicates the status of a series on the data base. Each series is shown as PUBLIC or SECURE.

PUBLIC — as a security level, means that the data are available to the public with no restrictions. However, some of the series may contain one or more SECURE data points.

SECURE — as a security level means that the data are classified as series secure, confidential or secret. The appropriate code or password for retrieving these data may be obtained from the source or originating division. See Inquiries List in Series Directory or Summary Index Reference.

Rename ..... This option allows the user to change the DATABANK number on outputs to a more meaningful name. The use of this option with TABLE format replaces the column number.

Range ..... A set of series and/or matrices to be retrieved.

APPENDICES

Appendix

1. DATABANK Tape Format (created by CANSIM)
2. PUBLICATION Tape Format
3. RE-ENTRY Tape Format
4. UTILITY Tape Format
5. RANDOM-D Format
6. Sample of TABLE Format
7. Sample of DISPLAY Format
8. Sample of MASSAGER Manipulation
9. Sample of FANTOM Printout
10. Sample X-11 Seasonal Adjustment Printout
11. Sample of a Publication produced using PUBLICATION Format
12. GENERAL Tape Format
13. MASS-DIRECTORY Tape Format and Sample Printout

Card Format: ADD MATRIX, Operation Code AM

Column number	Contents	Explanation
All cards[1] columns 1-27:		
1- 4	TSDB	System identification.
5- 8	4 characters maximum, left justified.	Agency responsible for accuracy and security of data.
9-12	4 characters maximum, left justified.	Section of Agency responsible
13-19	Blank	
20-21	AM	Operation code.
22-27	6 digits	Matrix number.
Fields varying from card to card		
Card number:		
28-30	001	Card number.
31-51	Blank	
52	1 or 2	Crossfoot 1 = yes 2 = no.
53-79	Blank	
80	P,* or S	Directory Security
Card numbers 2-7 inclusive:		
28-30	002 to 007	Long title card numbers
31-80	50 characters maximum, left justified	Long title cards are continuous through 6 cards for a total of 300 characters.
Card number 8:		
28-30	008	Short title card number.
31-70	40 characters maximum	Short title.
71-80	Blank	
Card number 9:		
28-30	009	Source card number.
31-80	50 characters maximum	Source title.
Notes		
Card numbers 011-020:		
28-30	011 to 020	Note card numbers. One note is allowed per Matrix.
31-80	50 characters maximum, left justified.	Enter title continuously up to 500 characters. Do not use hyphens to continue to next card.

[1] There is no card number 10.

Card Format: ADD SERIES Operation Code (AS) Header

Column number	Contents	Explanation
All cards columns 1-27:		
1- 4	TSDB	System identification.
5- 8	4 characters maximum, left justified.	Agency responsible for accuracy and security of data.
9-12	4 characters maximum, left justified.	Section of agency responsible.
13-19	Blank	
20-21	AS	Add series operation code.
22-27	6 digits, right justified	Matrix number.
Fields varying from card to card		
Card number 001:		
28-30	001	Card number.
31-50	20 digits maximum, left justified.	Series number.
51-52	00 to 09	Scalar Factor.
53-54	00 to 09	Number of decimal places.
55-56	Always 03	Data mask type code — not used.
57-59	001 to 998 or 999	Variance allowed, expressed as a per cent, as determined by the data source, or 999 = no edit requested.
60-66	Blank	
67-68	2 digit code	Report frequency.
69-71	3 digits	Expected time of update.
72-79	8 characters, e.g. D 1	DATABANK series number.
80	P, S or blank	Directory Security.
Card number 002:		
28-30	002	Card number.
31-50	20 digits maximum, left justified.	Series number.
51-60	10 characters, left justified	Unit of measure, dollars, bushels, tons, etc.
61-80	20 characters, left justified	**TITLE** — first part.
Card number 003:		
28-30	003	Card number.
31-50	20 digits maximum, left justified.	Series number.
51-80	30 characters, left justified	**TITLE** — Second part.

RE-ENTRY TAPE FORMAT

Card Format: Enter Data, Operation Code (ED)

Column number	Contents	Explanation
All cards columns 1-27:		
1 - 4	TSDB	System identification.
5 - 8	4 characters maximum, left justified.	Agency responsible for accuracy and security of data.
9-12	4 characters maximum, left justified.	Section of Agency responsible.
13-19	Blank	
20-21	ED	Operation code.
22-27	6 digits,	Matrix number.
Fields varying from card to card		
28-30	Blank	Normally used for card number.
31-50	20 digits maximum	Series number, left justified.
51-56	6 digits	Reference date (yr., mo., day).
57-66	10 digits	Data point.
67	Always 5	Type of data entry — initial entry of data.
68	1 digit	Security level.
69-72	4 digits	Footnote indicators. A data point may have up to 4 footnotes.
73	Always 9	The variance is calculated but no check is made with the variance contained in the series header.
74-80	Blank	(Not used)

Sample of TABLE Format

```
                                   CANSIM DATA RETRIEVAL          DATE: JUN 29 73                          PAGE 001
                              **** DIAGNOSTIC ERROR LISTING ****

RSC1
RSC2RETRIEVE IN TABLE              *
RSC3000179        1                     PUBLIC 7103  ******TOTAL
RSC3              1.1.1
RSC3              1.1.2
RSC3              1.1.3
RSC3              1.1.4                                  BANKS
RSC3              1.1.5
RSC3              1.1.6
RSC4

JOB CONTINUED - NO SYNTACTICAL ERRORS WERE FOUND
```

CANSIM DATA RETRIEVAL DATE: JUN 29 73 PAGE 1

000179 CONSUMER CREDIT: BALANCES OUTSTANDING OF SELECTED HOLDERS. MONTHLY SUB-TOTALS; TOTAL BY QUARTER: MIL LIONS OF DOLLARS, UNADJUSTED FOR SEASONALITY.

MATRIX NOTE

CREDIT EXTENDED TO INDIVIDUALS CHIEFLY FOR FINANCING PERSONAL CONSUMPTION EXPENDITURES. EXCLUDES IND EBTNESS ARISING FROM RESIDENTIAL MORTGAGES, HOME-IMPROVEMENT AND FULLY-SECURED BANK LOANS. DATA DOES NOT INCLUDE INTER-PERSONAL LOANS AND CERTAIN SERVICE CREDIT EXTENDED BY PROFESSIONAL PRACTIONERS. S OCIAL CLUBS, ETC. DATA PUBLISHED APPROXIMATELY 55 CALENDAR DAYS AFTER END OF PERIOD.

TOTAL	1	TOTAL CONSUMER CREDIT MTHLY & QRLY.REPS-BY QRLY.
COLUMN 2	1.1.1	SALES FINANCING COMPANIES - INSTALMENT FINANCING
COLUMN 3	1.1.2	SMALL LOAN COMPANIES - CASH LOANS UNDER $1,500.
COLUMN 4	1.1.3	OTHER CONSUMER LOAN COYS. CASH LOANS OVER $1,500.
BANKS	1.1.4	CHARTERED BANKS PERSONAL LOANS
COLUMN 6	1.1.5	QUEBEC SAVINGS BANKS PERSONAL LOANS
COLUMN 7	1.1.6	LIFE INSURANCE COYS' POLICY LOANS

CANSIM DATA RETRIEVAL DATE: JUN 29 73 PAGE 2

DATE YYMMDD	-- TOTAL DOLLARS MILLIONS	-- FOOT NOTE	-- COLUMN 2 -- DOLLARS MILLIONS	FOOT NOTE	-- COLUMN 3 -- DOLLARS MILLIONS	FOOT NOTE	-- COLUMN 4 -- DOLLARS MILLIONS	FOOT NOTE	-- BANKS -- DOLLARS MILLIONS	FOOT NOTE	-- COLUMN 6 -- DOLLARS MILLIONS	FOOT NOTE	-- COLUMN 7 -- DOLLARS MILLIONS	FOOT NOTE
710300	11270.2		909.5	F156	491.3	F3	957.5	F6	4790.3	F2	21.8	F2	767.4	
710400			905.3	F156	484.1	F3	965.8	F6	4899.6	F2	22.7	F2	768.1	
710500			904.9	F156	477.4	F3	987.2	F6	5064.4	F2	23.4	F2	771.3	
710600	11796.0		906.6	F156	470.3	F3	997.6	F6	5249.8	F2	24.4	F2	774.7	
710700			903.5	F156	465.9	F3	1005.2	F6	5333.8	F2	24.7	F2	776.3	
710800			902.4	F156	458.6	F3	1011.6	F6	5383.1	F2	25.2	F2	778.3	
710900	12131.2		896.2	F156	450.8	F3	1019.3	F6	5512.5	F2	25.5	F2	781.9	
711000			898.1	F156	442.1	F3	1025.4	F6	5605.4	F2	25.6	F2	783.4	
711100			892.8	F156	436.4	F3	1038.4	F6	5725.6	F2	25.6	F2	783.3	
711200	12684.1		890.5	F156	439.6	F3	1035.8	F6	5776.6	F2	25.3	F2	784.1	
720100			870.7	F156	430.4	F3	1040.0	F6	5767.8	F2	25.3	F2	783.0	
720200			865.0	F156	421.6	F3	1050.6	F6	5800.1	F2	25.1	F2	783.5	
720300	12786.0		867.7	F156	412.1	F3	1077.3	F6	5897.3	F2	25.8	F2	784.5	
720400			894.5	F156	405.6	F3	1097.2	F6	6027.1	F2	26.7	F2	786.1	
720500			925.0	F156	402.6	F3	1132.2	F6	6261.0	F2	28.1	F2	788.4	
720600	13591.5		954.0	F156	398.7	F3	1157.6	F6	6468.7	F2	28.9	F2	791.0	
720700			978.6	F156	395.8	F3	1170.2	F6	6560.6	F2	29.7	F2	793.4	
720800			987.6	F156	393.6	F3	1183.4	F6	6653.7	F2	30.1	F2	795.0	
720900	14117.2		994.1	F156	387.5	F3	1190.0	F6	6823.6	F2	30.5	F2	796.3	
721000			1017.6	F156	381.3	F3	1197.6	F6	6887.7	F2	30.6	F2	798.6	
721100			1024.3	F156	378.4	F3	1220.0	F6	7013.0	F2	30.4	F2	799.2	
721200	14869.8		1035.4	F156	384.1	F3	1240.8	F6	7144.4	F2	30.2	F2	800.4	
730100			1035.7	F156	376.3	F3	1244.0	F6	7173.9	F2	29.9	F2	801.6	
730200			1032.8	F156	371.3	F3	1258.8	F6	7265.4	F2	30.0	F2	803.0	
730300	15072.8		1033.9	F156	364.6	F3	1281.8	F6	7448.8	F2	31.3	F2	805.8	
730400			1046.8	F156	359.6	F3	1298.0	F6	7541.1	F2	32.7	F2	809.4	

* * SEE NEXT PAGE FOR FOOTNOTE(S) * *

CANSIM DATA RETRIEVAL DATE: JUN 29 73 PAGE 3

MATRIX NUMBER: 000179 FOOTNOTES REFERENCED IN PRECEDING TABLE PRINTOUT

FOOTNOTE: 1 CONDITIONAL SALES AGREEMENTS HELD IN CONNECTION WITH THE FINANCING OF RETAIL PURCH.OF CONSUMERS'GDS.& REPAID IN INSTALM.

2 PERSONAL LOANS OTHER THAN THOSE FULLY-SECURED BY MARKETABLE BONDS & STOCKS & HOME-IMPROVEMENT LOANS.

3 DISCONTINUITY: TILL DEC. 1956 SMALL LOANS ACT COVERED CASH LOANS UP TO $ 500 ONLY.

5 DISCONTINUITY: FROM JANUARY 1970 DATA EXCLUDES PASSENGER CARS FINANCED FOR COMMERCIAL PURPOSES.

6 DISCONTINUITY: FROM JANUARY 1971 DATA EXCLUDES UNEARNED FINANCE CHARGES.

Sample of DISPLAY Format

```
                    CANSIM DATA RETRIEVAL          DATE: JUN 29 73                    PAGE 001
                 **** DIAGNOSTIC ERROR LISTING ****

RSC1
RSC2RETRIEVE IN DISPLAY          *M
RSC3              D      1            PUBLIC 6101  ******
RSC3              D 602001
RSC4

JOB CONTINUED - NO SYNTACTICAL ERRORS WERE FOUND
```

```
                    CANSIM DATA RETRIEVAL          DATE:  JUN  29  73                 PAGE      1
D      1            000001.1                  SCALAR FACTOR: THOUSANDS          FREQUENCY: QUARTERLY
      MATRIX TITLE: ESTIMATED POPULATION OF CANADA BY PROVINCE, QUARTERLY, THOUSANDS OF PERSONS
      SERIES TITLE: CANADA                                                   UNIT OF MEASURE: PERSONS
```

DATE	1ST	2ND	3RD	4TH
61-01-00	18,092	18,172	18,271	18,363
62-01-00	18,442	18,519	18,614	18,708
63-01-00	18,787	18,864	18,964	19,061
64-01-00	19,142	19,222	19,325	19,420
65-01-00	19,501	19,578	19,678	19,777
66-01-00	19,857	19,939	20,048	20,146
67-01-00	20,228	20,306	20,412	20,509
68-01-00	20,581	20,644	20,729	20,814
69-01-00	20,888	20,950	21,028	21,111
70-01-00	21,182	21,244	21,324	21,400
71-01-00	21,465	21,523	21,595	21,665
72-01-00	21,724	21,781	21,848	21,912
73-01-00	21,984			

```
  SOURCE: CATALOGUE NO. 91-001, CENSUS, STATISTICS CANADA
    NOTE: ESTIMATES FOR CALENDAR QUARTERLY PERIODS, FROM JAN. 1946. QUARTERLY DATA RELATE TO JAN. 1, APR.1, JU
          LY 1, AND OCT. 1. FOR ESTIMATED POPULATION BY PROVINCE, AS OF JUNE 1 FOR YEARS 1946 ONWARDS, SEE MAT
          RIX 60. DATA PUBLISHED APPROXIMATELY 75 CALENDAR DAYS AFTER END OF REFERENCE QUARTER.
FOOTNOTE: NIL FOOTNOTES REFERENCED
```

```
                    CANSIM DATA RETRIEVAL          DATE:  JUN  29  73                 PAGE      2
D 602001             000193.1                  SCALAR FACTOR: UNITS              FREQUENCY: MONTHLY
      MATRIX TITLE: CONSUMER PRICE INDEXES FOR CANADA, 1961=100, MONTHLY
      SERIES TITLE: ALL-ITEMS                                                UNIT OF MEASURE: INDEX NO.
```

DATE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
61-01-00	100.0	99.8	99.9	99.9	99.8	99.8	99.8	99.9	99.9	100.0	100.4	100.5
62-01-00	100.4	100.5	100.4	100.9	100.7	101.0	101.4	101.7	101.4	101.8	102.1	102.1
63-01-00	102.2	102.2	102.2	102.4	102.4	102.8	103.3	103.6	103.3	103.4	103.7	103.9
64-01-00	103.9	104.1	104.2	104.5	104.5	104.7	105.4	105.3	105.0	105.0	105.2	105.9
65-01-00	106.0	106.2	106.3	106.6	106.8	107.6	108.0	107.9	107.7	107.8	108.5	109.0
66-01-00	109.3	110.0	110.2	110.8	111.0	111.3	111.7	112.2	112.3	112.5	112.6	112.9
67-01-00	113.0	113.1	113.4	114.4	114.6	115.2	116.3	116.8	116.6	116.5	116.9	117.5
68-01-00	118.1	118.2	118.6	119.3	119.3	119.7	120.4	120.7	121.1	121.4	121.9	122.3
69-01-00	122.6	122.6	123.2	124.6	124.9	125.9	126.4	126.9	126.6	126.8	127.4	127.9
70-01-00	128.2	128.7	128.9	129.7	129.6	129.9	130.5	130.5	130.2	130.3	130.3	129.8
71-01-00	130.3	130.9	131.3	132.2	132.7	133.0	134.1	135.0	134.7	134.9	135.4	136.3
72-01-00	136.7	137.3	137.4	138.2	138.3	138.5	140.2	141.3	141.8	142.0	142.3	143.3
73-01-00	144.5	145.3	145.7	147.3								

```
  SOURCE: PRICES AND PRICE INDEXES (62-002) AND PRICES DIV.
    NOTE: THE SERIES (2.) WERE OFFICIAL FOR MARCH 1961 THROUGH APRIL 1973.THE WEIGHTING PATTERN OF THE CONSUME
          R PRICE INDEX WAS REVISED EFFECTIVE MAY 1973; FOR DETAILED EXPLANATIONS OF CONCEPTS AND METHODS, CON
          TACT RETAIL PRICES SECTION, PRICES DIVISION.
FOOTNOTE: NIL FOOTNOTES REFERENCED
```

Sample of MASSAGER Manipulation

```
                                        CANSIM DATA RETRIEVAL          DATE: JUN 29 73                                PAGE 001
                                    **** DIAGNOSTIC ERROR LISTING ****

RSC1
RSC2RETRIEVE IN MASSAGER-D        *M
RSC3              D 762363              PUBLIC 7101  7301
RSC3              D 762418
RSC3              D 762463
RSC4

JOB CONTINUED - NO SYNTACTICAL ERRORS WERE FOUND


DATE : JUN 29 73                      AVAILABILITY  INDEX                                  PAGE   1
    SERIES IDENTIFIERS                   DATA RETRIEVED   DATE OF    FREQ    DATA POINTS
MASSAGER  CANSIM                         FROM    TO       LAST ENTRY          REPLACED BY 0

D 762363  001801.111.11.3                710100  730100    730219     12            0
D 762418  001801.211.11.3                710100  730100    730221     12            0
D 762463  001801.311.11.3                710100  730100    730221     12            0


      MASSAGER PROGRAMME RUN DATED -              . USING UNIVAC 1108 VERSION OF MARCH 17. 1971. MAX DATA ARRAY = 15000.

                                                    ***** PHASE ONE *****

 20   50       DEMONSTRATION  RUN

                                                    ***** PHASE TWO *****

  1 D 762363          19711973 2     0     TOTAL EMPLOYED
  2 D 762418          19711973 2     0     EMPLOYED MEN
  3 D 762463          19711973 2     0     EMPLOYED WOMEN
  0                   19      0 0    0


                                                   ***** PHASE THREE *****

  -999          1
 (16F5.0)
     4          25                DATES SUPPLIED
            0.710100000D 04      0.710200000D 04      0.710300000D 04      0.710400000D 04
            0.710500000D 04      0.710600000D 04      0.710700000D 04      0.710800000D 04
            0.710900000D 04      0.711000000D 04      0.711100000D 04      0.711200000D 04
            0.720100000D 04      0.720200000D 04      0.720300000D 04      0.720400000D 04
            0.720500000D 04      0.720600000D 04      0.720700000D 04      0.720800000D 04
            0.720900000D 04      0.721000000D 04      0.721100000D 04      0.721200000D 04
            0.730100000D 04
     0          0

                                                   ***** PHASE FOUR *****

     5   24    2    1    1   25    0    0    2        RATION-MEN

     6   24    3    1    1   25    0    0    2        RATIONWOMEN

     7   15    5    0    1   25    0    1    2        % - MEN
         100.00000000

     8   15    6    0    1   25    0    1    2        % - WOMEN
         100.00000000

     0   63    0    0    1   25    6    0    0       MEN AND WOMEN AS A % OF TOTAL EMPLOYED
 4 4 0 0      DATE
 1 4 0 0 TOTAL EMPLOYED (THOUSANDS)
 2 4 0 0  EMPLOYED MEN  (THOUSANDS)
 3 4 0 0 EMPLOYED WOMEN (THOUSANDS)
 7 2 2 0  EMPLOYED MEN  (% OF TOTAL)
 8 2 2 0 EMPLOYED WOMEN (% OF TOTAL)
```

MEN AND WOMEN AS A % OF TOTAL EMPLOYED

	DATE	TOTAL EMPLOYED (THOUSANDS)	EMPLOYED MEN (THOUSANDS)	EMPLOYED WOMEN (THOUSANDS)	EMPLOYED MEN (% OF TOTAL)	EMPLOYED WOMEN (% OF TOTAL)
1	7101.	7989.	5345.	2643.	66.90	33.08
2	7102.	8010.	5344.	2664.	66.72	33.26
3	7103.	8006.	5343.	2651.	66.74	33.11
4	7104.	7941.	5316.	2626.	66.94	33.07
5	7105.	8022.	5379.	2651.	67.05	33.05
6	7106.	8059.	5392.	2662.	66.91	33.03
7	7107.	8106.	5408.	2697.	66.72	33.27
8	7108.	8114.	5421.	2692.	66.81	33.18
9	7109.	8127.	5416.	2711.	66.64	33.36
10	7110.	8186.	5439.	2739.	66.44	33.46
11	7111.	8169.	5432.	2741.	66.50	33.55
12	7112.	8205.	5457.	2760.	66.51	33.64
13	7201.	8245.	5484.	2759.	66.51	33.46
14	7202.	8270.	5514.	2754.	66.67	33.30
15	7203.	8347.	5561.	2774.	66.62	33.23
16	7204.	8300.	5545.	2756.	66.81	33.20
17	7205.	8279.	5539.	2750.	66.90	33.22
18	7206.	8323.	5534.	2787.	66.49	33.49
19	7207.	8363.	5548.	2814.	66.34	33.65
20	7208.	8359.	5524.	2837.	66.08	33.94
21	7209.	8324.	5518.	2807.	66.29	33.72
22	7210.	8331.	5530.	2792.	66.38	33.51
23	7211.	8388.	5546.	2846.	66.12	33.93
24	7212.	8430.	5563.	2876.	65.99	34.12
25	7301.	8531.	5630.	2898.	65.99	33.97

Statistics Canada Statistique Canada

RECORD LAYOUT

Data Set Name: GENERAL

JOB Name: CANSIM

Field	Size	Position	Type	Title	
1	2	1-2	AN	Reserved	
2	1	3	N	Record type	
3	4	4-7	AN	Agency	
4	4	8-11	AN	Section	
5	6	12-17	N	Matrix number	
6	1	18	N	Crossfoot indicator	Matrix header record (type "2")
7	10	19-28	AN	Reserved	
8	300	29-328	AN	Long title	
9	40	329-368	AN	Short title	
10	50	369-418	AN	Source	
11	2	419-420	AN	Reserved	
12	500	421-920	AN	Note	
13	1080	921-2000	AN	Footnotes	
6	20	18-37	AN	Series number	Series record (type "4")
7	50	38-87	AN	Series title	
8	10	88-97	AN	Unit of measure	
9	1	98	N	Security indicator	
10	8	99-106	AN	Re-name	
11	2	107-108	BN	Data mask type	
12	2	109-110	BN	Variance allowed	
13	2	111-112	BN	Scalar factor	
14	2	113-114	BN	Number of decimal places	
15	2	115-116	BN	Report frequency	
16	2	117-118	BN	Expected date of update	
17	2	119-120	N	Record number	
18	1	121	N	Termination indicator	
19	6	122-127	N	"From" date	
20	6	128-133	N	"To" date	
21	3	134-137	PD	Number of datapoints	
22	3	138-140	PD	Number of "zero" secure datapoints	
23	61	141-200	AN	Reserved	
24	15x120	201-2000		Datapoints	

Statistics Canada Statistique Canada

RECORD LAYOUT

Data Set Name: MASS-DIRECTORY

JOB Name: CANSIM

Field	Size	Position	Type	Title
1	8	1-8	AN	Databank number
2	6	9-14	N	Matrix number
3	20	15-34	AN	Series number
4	2	35-36	AN	Reserved
5	4	37-40	AN	Agency
6	4	41-44	AN	Section
7	1	45	AN	Reserved

MASS-DIRECTORY Sample Printout

```
                                    CANSIM DATA RETRIEVAL          DATE: JUN 29 73                    PAGE 001
                                 **** DIAGNOSTIC ERROR LISTING ****

RSC1
RSC2RETRIEVE     MASS-DIRECTORY    *M
RSC3             RD     109
RSC3              D     120
RSC3             RB    1000
RSC3              B    1032
RSC3             RD  310397
RSC3              D  310460
RSC4

JOB CONTINUED - NO SYNTACTICAL ERRORS WERE FOUND
```

CANSIM DATA RETRIEVAL DATE: JUN 29 73 PAGE 001

*** MASSAGER CROSS-REFERENCE DIRECTORY ***

MASSAGER NO.	MATRIX NO.	SERIES NO.	MASSAGER NO.	MATRIX NO.	SERIES NO.	MASSAGER NO.	MATRIX NO.	SERIES NO.
D 109	000005	1	D 110	000005	1.1	D 111	000005	1.2
D 112	000005	1.3	D 113	000005	1.4	D 114	000005	1.5
D 115	000005	1.6	D 116	000005	1.7	D 117	000005	1.8
D 118	000005	1.9	D 119	000005	1.10	D 120	000005	1.12

CANSIM DATA RETRIEVAL DATE: JUN 29 73 PAGE 002

*** MASSAGER CROSS-REFERENCE DIRECTORY ***

MASSAGER NO.	MATRIX NO.	SERIES NO.	MASSAGER NO.	MATRIX NO.	SERIES NO.	MASSAGER NO.	MATRIX NO.	SERIES NO.
B 1000	000916	1	B 1001	000916	1.2	B 1002	000916	1.2.1
B 1003	000916	1.2.2	B 1004	000916	1.2.3	B 1005	000916	2
B 1006	000916	1.2.4	B 1007	000916	3	B 1008	000916	1.3
B 1009	000916	1.3.1	B 1010	000916	1.3.2	B 1011	000916	1.4
B 1012	000916	4	B 1013	000916	1.4.1	B 1014	000916	1.4.1.1
B 1015	000916	1.4.1.2	B 1016	000916	1.4.1.3	B 1017	000916	1.4.1.4
B 1018	000916	1.4.1.5	B 1019	000916	1.4.1.6	B 1020	000916	1.4.1.7
B 1021	000916	1.4.1.8	B 1022	000916	1.4.1.9	B 1023	000916	1.4.1.10
B 1024	000916	1.4.1.11	B 1025	000916	1.4.2	B 1026	000916	5
B 1027	000916	1.4.3	B 1028	000916	1.4.4	B 1029	000916	1.4.5
B 1030	000916	1.5	B 1031	000916	6	B 1032	000916	7

CANSIM DATA RETRIEVAL DATE: JUN 29 73 PAGE 003

*** MASSAGER CROSS-REFERENCE DIRECTORY ***

MASSAGER NO.	MATRIX NO.	SERIES NO.	MASSAGER NO.	MATRIX NO.	SERIES NO.	MASSAGER NO.	MATRIX NO.	SERIES NO.
D 310397	000518	1.1	D 310398	000518	1.2	D 310399	000518	1.3
D 310400	000518	1.4	D 310401	000518	1.5	D 310402	000518	1.6
D 310403	000518	1.7	D 310405	000518	2.1	D 310406	000518	2.2
D 310407	000518	2.3	D 310408	000518	2.4	D 310409	000518	2.5
D 310410	000518	2.6	D 310411	000518	2.7	D 310413	000518	3.1
D 310414	000518	3.2	D 310415	000518	3.3	D 310416	000518	3.4
D 310417	000518	3.5	D 310418	000518	3.6	D 310419	000518	3.7
D 310421	000518	5.1	D 310422	000518	5.2	D 310423	000518	5.3
D 310424	000518	5.4	D 310425	000518	5.5	D 310426	000518	5.6
D 310427	000518	5.7	D 310429	000518	6.1	D 310430	000518	6.2
D 310431	000518	6.3	D 310432	000518	6.4	D 310433	000518	6.5
D 310434	000518	6.6	D 310435	000518	6.7	D 310437	000518	7.1
D 310438	000518	7.2	D 310439	000518	7.3	D 310440	000518	7.4
D 310441	000518	7.5	D 310442	000518	7.6	D 310443	000518	7.7
D 310445	000518	4.1	D 310446	000518	4.2	D 310447	000518	4.3
D 310448	000518	4.4	D 310449	000518	4.5	D 310450	000518	4.6
D 310451	000518	4.7	D 310453	000518	8.1	D 310454	000518	8.2
D 310456	000518	9.1	D 310457	000518	9.2	D 310458	000518	9.3
D 310459	000518	9.4	D 310460	000518	9.5			

**** TOTAL MASSAGER NUMBERS PRINTED 000101 ****

CATALOGUE NO. 12-531 OCCASIONAL

CANSIM:

USERS' MANUAL FOR DATA RETRIEVAL AND MANIPULATION

DOMINION BUREAU OF STATISTICS

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National Accounts, Production and Productivity Division
General Time Series Section

CANSIM: USERS' MANUAL FOR DATA RETRIEVAL AND MANIPULATION

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PROLOGUE

This manual describes part of a system which had its inception in a data storage, retrieval and manipulation computer package developed by M.C. McCracken. This prototype system was developed in 1964 at Southern Methodist University, where there was a need to collect and manipulate time series data in order to estimate parameters for an econometric model. The first version of the system used card images stored on magnetic tape and a small retrieval program which simply reformatted the data for input to statistical utility programs. In January 1965 the development of a more advanced system was started and a working version of this new system was in use by April of 1965.

The Economic Council of Canada provided funds for the development of an expanded system on a CDC 3400 computer at the University of Montreal. The expanded version has been in use, with modifications, since September 1965. In May 1966 the Bank of Canada became the first agency other than the Council to make use of the system and during the Summer and Fall of 1966 the National Energy Board and the Department of Finance also began using the system for maintenance and manipulation of the data necessary in their analytical operations.

In November of 1966 the Dominion Bureau of Statistics accepted the responsibility for the entry of data into the base and maintenance of the existing programs. The Economic Council and the Bank of Canada expressed the hope that this system would eventually be modified into a true information system for use in the operations of statistical agencies of the Canadian government.

As a result, in July 1967, an inter-departmental team was set up under the direction of Dr. T.J. Vander Noot to design and implement a national data base for socio-economic data. This manual comprises one volume of the documentation for this system.

TABLE OF CONTENTS

INTRODUCTION

CANSIM (Canadian Socio-Economic Information Management System) is designed to provide efficient and economic management of a large volume of time-series data. The programs for data storage, retrieval, and manipulation comprising the system were written for the IBM 360/65. Management, control, and maintenance of the system are the responsibility of the Dominion Bureau of Statistics but accuracy of the included data is the responsibility of the agency compiling it.

Operation of the programs will be supervised by Data Bank Control, in the Operations Unit of the General Time Series (GTS) Section.

The subject of this manual is the retrieval subsystem which provides for the retrieval and manipulation of data stored in the base. A companion manual, entitled "CANSIM: Operation Manual for Data Entry" (Catalogue No. 12-530 Occasional—$1.00), deals with the clerical and machine procedures used for entry, up-date, and revision of the data, is available from Publication Distribution.

The following sections describe the data base, the data directory, and the command language. While it is expected that the system will eventually be a real-time system,(providing immediate response to retrieval or manipulation requests by users) a batch processing mode will be followed at first. Retrieval requests will be submitted to the CANSIM Operations Unit for batching with other such requests, for action at the next earliest running of the system.

A description of the data base (including record formats and explanations of codes) is given in Section 2. Also included are descriptions of the matrix and series numbering system and examples in the form of the Matrix Directory.

Section 3 is a description of the command language used to retrieve and manipulate data. Error messages are listed under a separate heading in this section. Included in this section is an outline of the job control cards necessary for correct delivery and billing.

Section 4 contains an outline of the administrative and billing procedures to be followed when submitting jobs.

The final section, Section 5, is a glossary of all words used in the command language or in the control or job cards. Samples of typical requests are also shown in this section.

Since the retrieval sub-system is considered to be evolutionary in nature, this entire manual is in loose-leaf form. As new commands are added to the sub-system or other changes are made, the appropriate pages will be revised and reissued.

DESCRIPTION OF THE DATA BASE

Each file or most probably time series in the CANSIM base is entered as part of a matrix of similar files arranged in hierarchical fashion. An illustration might be a population table arranged as follows:

February, 1969 — Population statistics

Table 1: population, by province (thousands)

years and months	Canada	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon	N.W.T.
1966 June	20,015	493	109	756	617	5,781	6,961	963	955	1,463	1,874	14	29
1967 June	20,405	500	109	757	620	5,868	7,149	963	958	1,490	1,947	15	29
1966 Jan.	19,857	490	108	754	616	5,740	6,888	962	952	1,456	1,848	15	28
Apr.	19,939	492	108	755	616	5,762	6,926	963	954	1,459	1,862	14	28
June	20,015	493	109	756	617	5,781	6,961	963	955	1,463	1,874	14	29
July	20,050	494	109	756	617	5,788	6,979	963	956	1,465	1,880	14	29
Oct.	20,158	496	109	755	617	5,812	7,033	961	957	1,470	1,905	14	29
1967 Jan.	20,252	497	109	755	618	5,833	7,078	959	956	1,476	1,927	15	29
Apr.	20,334	500	109	756	619	5,854	7,115	961	955	1,483	1,938	15	29
June	20,405	500	109	757	620	5,868	7,149	963	958	1,490	1,947	15	29
July	20,441	501	109	758	621	5,873	7,167	965	958	1,493	1,952	15	29
Oct.	20,548	502	109	758	623	5,894	7,217	966	959	1,502	1,973	15	30
1968 Jan.	20,630	502	110	760	623	5,910	7,252	968	959	1,511	1,990	15	30
Apr.	20,700	505	110	760	624	5,923	7,283	969	959	1,520	2,002	15	30
June	20,744	507	110	760	624	5,927	7,306	971	960	1,526	2,007	15	31
July	20,772	508	110	760	625	5,930	7,321	972	961	1,529	2,010	15	31
Oct.	20,857	511	110	762	626	5,945	7,355	974	962	1,538	2,028	15	31

Source: Estimated population of Canada, by province (91-201), D. B. S.

This table appears monthly in the Canadian Statistical Review. In the CANSIM data base, the time series (columns of data) have been restructured:

01 Total Canada

02 Newfoundland

02 Prince Edward Island

02 Nova Scotia

The entire "Table" is called a matrix. The "01" level within the matrix signifies that this time series is the total or summary measure. The "02" levels are thus subordinate in some way. Since data collected as a single time series are almost always interdependent with other data, the matrix arrangement allows a whole set of files to be updated or revised at the same time. Matrices also allow for a greater degree of internal verification of the data entered. For instance, in the above example, the "02" level entries (Provinces) must add to the "01" total level (Canada).

All retrievals are made by a single number which indicates the matrix and series desired. The numbering scheme is illustrated below in the sample of the first page of the Matrix and Series Directory. This particular table is identified as Matrix 1.

MATRIX AND SERIES DIRECTORY

000001 NUMBER OF PERSONS IN CANADA, BY PROVINCES, BY QUARTERS SINCE 1940.

ESTIMATED POPULATION OF CANADA BY PROVINCE (91-201), DBS.

ESTIMATES FOR CALENDAR QUARTERLY PERIODS, FROM JULY 1, 1951. QUARTERLY DATA RELATE TO JAN. 1, APR. 1, JULY 1 AND OCT. 1.

DBS 2	6002			
1	CANADA	40-01-01	PUBLIC	D 1
1.1	NEWFOUNDLAND	46-01-01	PUBLIC	D 2
1.2	PRINCE EDWARD ISLAND	47-01-01	PUBLIC	D 3
1.3	NOVA SCOTIA	40-01-01	PUBLIC	D 4
1.4	NEW BRUNSWICK	40-01-01	PUBLIC	D 5
1.5	QUEBEC	40-01-01	PUBLIC	D 6
1.6	ONTARIO	40-01-01	PUBLIC	D 7
1.7	MANITOBA	40-01-01	PUBLIC	D 8
1.8	SASKATCHEWAN	40-01-01	PUBLIC	D 9
1.9	ALBERTA	40-01-01	PUBLIC	D 10
1.10	BRITISH COLUMBIA	40-01-01	PUBLIC	D 11
1.11	YUKON	40-01-01	PUBLIC	D 12
1.12	NORTHWEST TERRITORIES	40-01-01	PUBLIC	D 13

000002 NUMBER OF PERSONS IMMIGRATING TO CANADA, BY COUNTRY OF LAST PERMANENT RESIDENCE.

QUARTERLY BULLETIN, DEPARTMENT OF MANPOWER AND IMMIGRATION.

DATA PUBLISHED APPROXIMATELY 75 CALENDAR DAYS AFTER END OF REFERENCE QUARTER.

DBS 2	6002			
1	TOTAL	46-01-01	PUBLIC	D 27
1.1	UNITED KINGDOM AND IRELAND	46-01-01	PUBLIC	D 28
1.2	FRANCE	46-01-01	PUBLIC	D 29
1.3	GERMANY	46-01-01	PUBLIC	D 30
1.4	NETHERLANDS	46-01-01	PUBLIC	D 31
1.5	GREECE	46-01-01	PUBLIC	D 32
1.6	ITALY	46-01-01	PUBLIC	D 33
1.7	PORTUGAL	46-01-01	PUBLIC	D 34
1.8	OTHER EUROPE	46-01-01	PUBLIC	D 35
1.9	ASIA	46-01-01	PUBLIC	D 36
1.10	AUSTRALASIA	46-01-01	PUBLIC	D 37
1.11	UNITED STATES	46-01-01	PUBLIC	D 38
1.12	WEST INDIES	46-01-01	PUBLIC	D 39
1.13	ALL OTHER	46-01-01	PUBLIC	D 40

These directory entries show the basic structure of the base. Everything needed by the user on the "matrix record" is shown in the directory. First is shown the matrix number which identifies the specific matrix in all retrievals. Next are shown the long title and the source of the data. Following is the matrix note (if any) and finally the agency and section responsible for the data. All of the above material is part of the matrix record and pertains to all subsidiary data series.

The data series are listed next. Each line shows the series number, the title, the date of the earliest data, and finally whether or not there are any restrictions on the use of the data. The term "PUBLIC" means that there are no restrictions, "PART SEC" indicates that at least one data point is restricted, and "SECURE" indicates that the entire series is restricted. The last entry is the Data Bank series number. Further, if a series is terminated, 'T' will appear to the left of the series-number and data may be retrieved from a terminated series.

The directory is considered to be a full statement of the contents of the data base and updates and revisions will be made as required.

A full and detailed statement of the contents of the matrix and series records is shown in Appendix 2 as part of the documentation of the "Retrieve in Publication Format" command.

RETRIEVAL AND MANIPULATION LANGUAGE

The retrieval and manipulation language is designed to be as flexible and powerful as is possible, while at the same time staying within the staff and time restrictions which exist for programming and analysis.

One problem that has existed with some command sets is that they are not designed to be added to, and if additional commands were necessary, the entire structure of the language had to be revised. It is a goal of the CANSIM system that additional commands may be added without altering previously existing commands.

Another design criterion was that the users of the system will be primarily subject-area specialists with little or no interest in how the "big black box" actually performs the tasks given to it. The manipulation sub-routines are controlled by unformatted English language commands (with user-oriented syntax and vacabulary) and this manual does not explain the program's logic which interprets the commands.

Experienced programmers tend to prefer command languages that are terse and have little redundancy. Such compact languages, however, tend to be difficult for non-programmers to learn and use; therefore, the command set tries to partially satisfy both the programmer and non-programmer by having a long and short form for each command.

Requests for Retrievals

In the handling of information requests a distinction is made between Federal Government and all other users. This difference is made necessary since government users have access to the Central Data Processing Service Bureau.

All keypunch instructions below assume the EBCDIC code rather than BCD.

Retrieval Requests Originating Outside the Federal Government

Non-government users should refer to Section 4 Part B for procedures to follow for retrieval requests. They should however read the next section which deals with the procedures for government users. Retrieval options available to government users are also available to non-government users.

Requests Originated by Agencies of the Federal Government

Retrieval requests and data entry cards are to be sent directly to the CANSIM Clerk, General Time Series Section, DBS. Request cards must be completely keypunched according to the formats shown below.

Retrievals and data entry printouts will be returned to the originator by the CANSIM Clerk, or in some instance arrangements may be made for direct delivery from CDPSB.

Job Request Cards (Government Users)

Requests received must be identified so that the job can be returned and the cost of the work billed appropriately. Therefore, each request or job consists of three or more cards:

1. A START JOB card;
2. One or more command cards; and
3. A FINISH JOB card.

Many jobs (requests from different people) will be batched together to be run on the computer. The jobs, then, are separated one from another by a FINISH JOB and the next job's START JOB card. All jobs being batched together as one run are independent of each other; that is, an error in one job causes the termination of only that job and not the other jobs in that batch.

The format and Hollerith Code for START JOB card is given below:

Column number	Field type[1]	Explanation
1 - 4	A	RSFC. An identifying mnemonic for CANSIM retrieval cards.
5 - 8	AN	A four letter mnemonic identifying the agency. A full list of these codes is available from Data Bank Control.
9 - 11	AN	Any identification acceptable to the user agency adequate to identify the specific user. This may be a persons initials or some "internal" agency accounting code.
12 - 15	N	Card Number. "For safety's sake" all cards in a job should be sequentially numbered.
16 - 25	A	Punch 'STARTbJOBb'.
26 - 80	AN	Heading. The contents of this field will appear at the top of each page of printed output or be attached to any tape reel or card output from the request.

The format of the FINISH JOB card is as follows:

Column number	Field type[1]	Explanation
1 - 4	A	RSFC
5 - 8	AN	Agency name
9 - 11	AN	User in agency code (as in START JOB card).
12 - 15	N	Card number
16 - 25	A	'FINISHbJOB'
26 - 80		Blank

The format of the Command Cards is similar:

Column number	Field type[1]	Explanation
1 - 4	A	RSFC
5 - 8	AN	Agency
9 - 11	AN	User in agency
12 - 15	N	Card number
16 - 80	AN	Commands in free form

[1] The abbreviations A, AN, N, stand for alphabetic, alphanumeric, and numeric respectively.

Conventions in the Command Set

1. Each command must end with a period. No other punctuation is necessary.

2. A four digit card number in a job is optional. If it is used, a card sequence check will be done. Out of sequence card(s) will result in warning messages only, not a job termination.

3. In the event that a command is continued on several cards, put only **complete** words on each card. If one word ends in column 80, then the next card must have a blank in column 16.

4. Upper case words are CANSIM words and must be spelled as they appear.

5. Upper case words which are underlined are words making up the abbreviated command set. These are called "key-words."

6. Upper case words which are not underlined are optional and may be omitted.

7. Lower case words describe information which must be supplied by the user.

8. Square brackets ([ ]) indicate optional commands.

9. Braces ({ }) enclosing a list means that the programmer **must** select one of the enclosed items.

10. A word or phrase enclosed by a pair of slashes (//) indicates that the word or phase may be repeated a number of times.

Retrieve Command

$$\underline{\text{RETRIEVE}} \left\{ \begin{array}{l} \underline{\text{series-identifier}} \\ \underline{\text{LIST}} \end{array} \right\}$$

This command seeks one or more series records in the data-base. A specific series-identifier or the word LIST must always follow the word RETRIEVE.

A series identifier is made up of the matrix number and the series number separated by a period. For instance, to retrieve the series on immigration from Greece, the number 2.1.5 would be used (see Matrix and Series Directory). Leading zeros may be omitted.

When the word LIST is used, it indicates that a number of series are to be retrieved and series-identifiers will appear on a set of cards (one card per series) following the command card as follows:

RETRIEVE LIST .....

//series-identifier//

Column number	Field type[1]	Explanation
1- 4	A	RSFC
5- 8	AN	Agency
9-11	AN	User in agency
12-15	N	Card number
16-80	AN	Series number

[1] The abbreviations A, AN, N, stand for alphabetic, alphanumeric, and numeric respectively.

Retrieve on Tape Commands

RETRIEVE {series-identifier / LIST} ON TAPE IN MASSAGER FORMAT.

The basic function of the command is that it seeks the series records in the data base, changes their formats, and writes the retrieved and reformatted series out on tape. The data will be converted to floating point numbers (single precision) and the tape may be used as input to DATABANK, MASSAGER, and MATOP programs running on IBM 360's. Tape conversions in most cases will be needed for using it as input to other computers. A FORTRAN program to convert to 7 track BCD tape is available at no cost. If double precision is required the words "IN DOUBLE PRECISION" must follow the word "FORMAT" i.e. FORMAT IN DOUBLE PRECISION.

See Appendix 1 for the tape layout.

RETRIEVE {series-identifier / LIST} ON TAPE IN PUBLICATION FORMAT.

Same as for MASSAGER format except that the PUBLICATION format contains all of the information stored in the base pertaining to that series and is used primarily as input to report generating programs for printed publications. (See Appendix 2 for the tape layout.)

RETRIEVE {series-identifier / LIST} ON TAPE IN {MASSAGER / PUBLICATION} FORMAT

[USING SECURITY security-word].

In order to retrieve series which have security restrictions, the correct seven character (alphanumeric) word must be used following the key-word SECURITY. Only the non restricted data of a partially restricted series will be retrieved if the proper SECURITY word is missing. Any errors in spelling will block retrieval. Notice is always sent to the responsible agency of any retrieval or attempted retrieval of a restricted series using the SECURITY option.

Retrievals of secured data are somewhat more complicated when the LIST option is used since the necessary security word may be different for each series retrieved. If the word as shown is used in the security option then the format of the series identifier card also changes. For instance:

RETRIEVE LIST ON TAPE IN {MASSAGER / PUBLICATION} FORMAT USING SECURITY AS SHOWN.

//series-identifier security-word//

If public series, needing no code word, are included in the list of series to be retrieved then the security-word may be omitted for those series.

RETRIEVE {series-identifier / LIST} ON TAPE IN MASSAGER FORMAT

[USING SECURITY security-word]

[GIVING NEW-SECURITY new-security-word].

MASSAGER format tapes can be used as work tapes and it sometimes is worthwhile to restrict data. The use of NEW-SECURITY adds an eight character field to the MASSAGER format tape which makes it a restricted series under the MASSAGER program.

If the LIST, and NEW-SECURITY options are used, then the format of the series identifier card changes again. To illustrate:

RETRIEVE LIST IN MASSAGER USING SECURITY AS SHOWN GIVING NEW-SECURITY AS SHOWN.

//series-identifier security-word new-security-word//

The NEW-SECURITY option cannot be used if the SECURITY option is not used. In other words, a public series cannot be retrieved and given a new-security-word.

Retrieve on Card Commands

RETRIEVE {series-identifier / LIST} IN RE-ENTRY FORMAT

[USING SECURITY security-word].

The output tape in the RE-ENTRY format contains card images. This tape can be re-entered into the base through the data-entry program of the CANSIM system. However, in order to re-enter the data into the base, the data entry and other security words, if necessary, must be added to the cards since the retrieval program will **not** retrieve security words and display them in any way. (See Appendix 3).

Retrieve in Table Format Command

This command produces a "working table" with which the user can examine the detail and content of the data base. The general format of the command is:

RETRIEVE {series-identifier / LIST} IN TABLE FORMAT [USING SECURITY security-word].

The general format of the table is shown on the next two pages. There are a number of restrictions which are discussed below.

1. Provision is made for only ten series to be listed on one page. If the number of series-identifiers following the LIST option exceeds ten, the first ten series will be shown on the first table and the next ten on the next, etc.
2. The date column will be derived from the series with the greatest frequency for which a data value is available. For example, given a combination of quarterly and monthly series, the date column will be derived from the monthly series.
3. To retrieve a "SECURE" data point, the appropriate retrieval code-word is necessary. If a "SECURE" point is retrieved, an asterisk will be printed beside the number and a warning:

   "THIS PAGE CONTAINS SECURE DATA" will be printed at the bottom of the page.

   If no code-word is given, then "SECURE" points will be omitted or left blank.
4. There is no method to limit the amount of data printed at the present. If the first data point on a monthly series is in 1940, every data point from that time on would be listed.

The printout from the following command is shown on the next two pages:

RETRIEVE LIST IN TABLE FORMAT.
1.1
1.1.1
1.1.2
1.1.3
2.1

000001 NUMBER OF PERSONS IN CANADA, BY PROVINCES, BY QUARTERS SINCE 1940.

COLUMN 1: 1 CANADA

COLUMN 2: 1.1 NEWFOUNDLAND

COLUMN 3: 1.2 PRINCE EDWARD ISLAND

COLUMN 4: 1.3 NOVA SCOTIA

000002 NUMBER OF PERSONS IMMIGRATING TO CANADA, BY COUNTRY OF LAST PERMANENT RESIDENCE.

COLUMN 5: 1 TOTAL

DATE	COLUMN 1 THOUSANDS OF PERSONS	COLUMN 2 THOUSANDS OF PERSONS	COLUMN 3 THOUSANDS OF PERSONS	COLUMN 4 THOUSANDS OF PERSONS	COLUMN 5 NUMBER OF PERSONS
JAN. 40	9,806	–	–	595	–
FEB. 40	9,819	–	–	595	–
DEC. 45	11,622	–	–	620	–
JAN. 46	11,703	368	–	621	92,554
JUN. 67	20,405	500	109	757	64,969
SEP. 67	20,552	501	109	758	72,803

Error Messages

The error messages shown below are in alphabetic order. A "T" (terminate) code means that the job is terminated at that point. An "I" (ignore) code indicates that **only** that card has been ignored. A "W" (warning) means that the program has made some assumption about the command and this assumption should be checked.

The error message appears immediately after the command to which it refers. Since the retrieval program is written as an "interpreter", each command is obeyed as it is read.

CARD IDENTIFICATION INCORRECT:

I – If the card does not contain the identification mnemonic 'RSFC', this code is issued and the card is ignored. If this results in the START JOB or FINISH JOB card being missing, then that error message will show as well. If the START JOB card is missing, the job will be terminated and all cards will be ignored until the FINISH JOB or the next START JOB card is found.

CARD OUT OF ORDER:

W – This message indicates that the card numbers (when used) are not in order.

CHANGE IN AGENCY CODE:

I – If the agency code in subsequent cards is not the same as given on the START JOB card, the command will not be actioned.

COMMAND CANNOT BE INTERPRETED:

I – If some essential element of the command is omitted such as the word RETRIEVE or the period, then this message will be given.

FINISH JOB CARD MISSING:

W – This indicates that the FINISH JOB card is missing. If the next job is missing the START JOB card, all commands will be billed to the person and agency indicated on the first START JOB card if the agency remains the same.

IMPROPER FORMAT STATEMENT:

I – A retrieve command requires that one format statement (MASSAGER, PUBLICATION, RE-ENTRY, or TABLE) be selected to indicate the desired output. If the word is mis-spelled or omitted, this message will appear beside the appropriate command.

IMPROPER SERIES-IDENTIFIER:

I – The program expects the word after the key-word RETRIEVE to be either LIST or a series-identifier. If the word LIST is mis-spelled or the series-identifier has the wrong format, this error message will print out beside the command line on the print-out.

INCORRECT SECURITY-WORD:

I – A valid security-word appropriate to the series being retrieved must be given in the command immediately following the word SECURITY.

INVALID AGENCY CODE:

T – If the agency mnemonic given on the START JOB card is not in the list of acceptable codes, all commands in that job will be ignored.

NEW-SECURITY STATEMENT IS REDUNDANT:

W – The NEW-SECURITY option has meaning only if applied to the MASSAGER format. If used in connection with any other format it is redundant and is ignored.

NEW-SECURITY-WORD TOO LONG:

I – More than eight characters have been shown for a new-security-word.

REPORT FREQUENCY INCORRECT:

I – The MASSAGER format permits only annual, quarterly, and monthly series to be retrieved. If an attempt is made to retrieve a series with another frequency, that card is ignored and this message printed out.

SECURITY-WORD TOO LONG:

I – More than seven characters have been shown for a security-word.

SERIES IS NOT IN BASE:

I – This message indicates that the series requested cannot be located in the base.

START JOB CARD MISSING:

T – This error terminates the job and all cards are ignored until the next START or FINISH JOB card is found.

WORD IS TOO LONG:

I – Some word in the command exceeds thirty characters in length.

ADMINISTRATIVE AND BILLING PROCEDURES

This section is in two parts; Part A covers procedures to be followed by Federal Departments and Agencies who have an account with the Central Data Processing Service Bureau; and Part B covers procedures to be followed by non-government users.

PART A

All jobs (retrieval request cards and data entry cards) are to be submitted with a work ticket to the CANSIM Clerk, General Time Series Section, DBS. A rubber stamp with additional information required will be made available on request. The following information on the work ticket must be completed:

(a) programmer's name

(b) account number

(c) phone number

(d) date submitted

(e) estimated running time

(f) information on stamp

On receipt of the work ticket, the CANSIM Clerk will combine the work tickets from the various departments and agencies, and prepare one job submission to CDPSB under Dummy Account CSM01. A copy of all work tickets included in this job will be filed together with a copy of the job submission form.

Completed jobs will carry information provided by the CANSIM housekeeping system on **total** run time and times for **each** agency and section. On completion of each job the clerk will:

(a) calculate the percentage of the job for which each agency and section is responsible for, and indicate this percentage on the work ticket; and

(b) return completed runs to originator.

At the end of each month, CDPSB will provide the CANSIM Clerk with a statement listing the jobs submitted under Dummy Account CSM01 with cost for each job. This statement will not only include the time provided by the CANSIM housekeeping system but also the time and cost for additional operations such as SYSIN, SYSOUT, and SPOOL, which may have been incurred by the job.

For each job the clerk will calculate the cost to be borne by each work ticket and indicate the amount on the work ticket. For example a job costing $25.00 with 3 work tickets will be calculated as follows:

Work Ticket 1	25%	= $ 6.25
Work Ticket 2	10%	= $ 2.50
Work Ticket 3	65%	= $16.25
	100%	$25.00

This means that the cost for additional operations for a given job is prorated. Although using this method may not be equitable for any given job, over a period of 3 - 4 months it should prove reasonable and fair.

After calculating the cost for each work ticket, the work tickets will be submitted to CDPSB for billing action. Under this procedure billing action may be one month in arrears.

PART B

Non-government users must submit all retrieval requests to the CANSIM Clerk, General Time Series Section, Dominion Bureau of Statistics, Ottawa.

A CANSIM Purchase Agreement should be submitted unless previous arrangements obviate this requirement. If the form does not provide sufficient space, a separate list should be attached indicating the type of retrieval with the series-identifier. Since command and series-cards are pre-keypunched by the General Time Series Section, cards will not be required.

The "standard tape" in MASSAGER format (single precision) which can be used as input to DATABANK and MASSAGER program is available only in 360/65 format. A FORTRAN program to convert to 7 track BCD tape is available at no cost. If double precision is required, additional cost will be incurred.

Requests for Purchase Agreement forms and inquiries should be directed to Mr. T. Tanaka, CANSIM Users' Service, General Time Series Section, DBS, Ottawa.

GLOSSARY

Command ..... A group of words delimited by a period followed by a space on the input card which initiates the retrieval of a series in the specified format.

FORMAT:

Massager ..... Tape generated of the requested series to be used as input to manipulative programs such as MASSAGER or MATOP.

Publication ..... Tape generated of the requested series and used primarily as input to report generating programs for printed publications. It contains almost all of the information stored in the base pertaining to that series.

Re-entry ..... A card-image tape of the requested series which can be re-entered into the base through the data-entry program of the CANSIM system.

Table ..... This format produces a "working table" printout with which the user can examine the content and detail of the data base.

Key-word ..... A word which initiates a specific action by the RSFC program.

List ..... When used, the program will expect a set of cards with series-identifiers to follow.

New-security ..... The use of this word adds an eight character field to the MASSAGER format tape which makes it a restricted series under the MASSAGER program.

Retrieve ..... Command that seeks one or more series records in the data-base. A series-identifier or the word LIST must immediately follow this key-word.

Security ..... The RSFC program will interpret the seven character (alphanumeric) word following as the security word. If **SECURITY** is omitted, the program will generate a seven character blank security-word.

Series-identifier ..... Made up of the matrix number and series separated by a period.

Word ..... A group of consecutive non-blank characters in the command field of the input card. (Max. $\leq$ 30 characters).

APPENDICES

Note: The formats following are necessarily brief. For full information it will be necessary to check the appropriate sections of the following publications: "DATABANK" and "CANSIM: Operation Manual for Data Entry".

MASSAGER COMPATIBLE BINARY TAPE FORMAT
CREATED BY CANSIM

I = Integer
A = Alphanumeric
S = Single precision
D = Double precision

Name	Type	Number of bytes	Description
ST1	I	4	Total number of 8 byte words of title information in matrix, series, etc. (Always NOTIT x 10).
LABEL	A	8	An 8 character series identification code (DATABANK).
M1	I	4	Always 0.
NOSEC1	A	8	An 8 character series security code (series security code and a blank).
NOUT1	A	8	DB verification tag (last update in form YY-MM-DD).
NOPEN1	I	8	Length of title record in characters (ST1 x 8).
KBEG	I	4	First year of data series (e.g. 1928)
KEND	I	4	Last year of data series (e.g. 1968)
ESEC1	A	8	Blank. An 8 character edit security code used in DATABANK.
KIND	I	4	Annual = 1, Quarterly = 4, Monthly = 12.
NOTIT	I	4	Number of title cards. Equals N1 + N2 + N3.
N1	I	4	Number of series cards (i.e. matrix long title, series title, unit of measure and scalar factor). Always 5.
N2	I	4	Number of source cards (i.e. source and CANSIM series identifier). Always 2.
N3	I	4	Number of Note and Footnote cards. Up to a maximum of 21.
KSIGDM	I	4	Number of significant digits in DATABANK 10 if double precision 7 if single precision
KRTDEC	I	4	Number of digits to the right of the decimal point
ISPDP1	I	4	1 if double precision 0 if single precision
KTITLE	A	ST1x8	Matrix title of 300 characters followed by 20 blanks. Series title of 50 characters followed by 2 blanks. Unit of measure of 10 characters followed by 2 blanks. Scalar factor of 16 characters. Two lines of source information. Required number of lines of note and footnote information.
BUFI	I	4	Number of 4 byte words in DATA array.
KTAG	A	8	Same information as in LABEL.
M2	I	4	Always 1.
NSEC2	A	8	Same information as in NSEC1.
NOUT2	A	8	Same information as in NOUT1.
NOPEN2	A	8	Number of Characters in data record. 10 x BUFI.
DATA	S or D	BUFIx4	Data array. Contains BUFI single precision values or BUFI/2 double precision values.

PUBLICATION TAPE FORMAT

Matrix Record

Field	Length	Description
1 - 6	6N	Date: Date of Publication retrieval
7 - 12	6N	Matrix number
13 - 32	20	Series: Blank
33	1	Record type: 'M' (Matrix record)
34 - 35	2N	Record number: '99'
36 - 39	4	Agency responsible
40 - 43	4	Section responsible
44	1N	Crossfoot check
45 - 344	300	Long title
345 - 384	40	Short title
385 - 434	50	Source
435 - 934	500	Note
935 - 1054	120X	Footnote 1 } Up to nine footnotes are allowed on each matrix, each footnote can be up to 120 characters.
1055 - 1174	120X	Footnote 2
1175 - 1294	120X	Footnote 3
1295 - 1414	120X	Footnote 4
1415 - 1534	120X	Footnote 5
1535 - 1654	120X	Footnote 6
1655 - 1774	120X	Footnote 7
1775 - 1894	120X	Footnote 8
1895 - 2014	120X	Footnote 9
2015 - 2025	11	(Not used)

Series Record

Field	Length	Description
1 - 6	6N	Date: Date of publication retrieval.
7 - 12	6N	Matrix number
13 - 32	20	Series number
33	1	Record type: 'S' (Series record)
34 - 35	2N	Record number: Last record is 99
36 - 39	4	Agency
40 - 43	4	Section
44 - 93	50	Title
94 - 103	10	Unit of measure
104 - 105	2N	Data mask type
106 - 108	3N	Variance allowed
109 - 110	2N	Scalar factor
111 - 112	2SN	Floating point characteristic
113 - 114	2N	Report frequency
115 - 117	3N	Expected time of update.
118 - 2021		Data points
	6N	Date of reference
	6N	Entry date
	1N	Security code
28	4N	Footnotes
	1N	Entry type
	10SN	Data point[1]
2022 - 2025		(Not used)

[1] There will be 68 data points on each series record.

Card Format: ADD MATRIX, Operation Code AM

Column number	Contents	Explanation
Auto duplicate		
All cards[1] columns 1-27:		
1 - 4	TSDB	System identification.
5 - 8	4 characters maximum, left justified.	Agency responsible for accuracy and security of data.
9-12	4 characters maximum, left justified.	Section of Agency responsible
13-19	Blank	
20-21	AM	Operation code.
22-27	6 digits	Matrix number.
Fields varying from card to card		
Card number:		
28-30	001	Card number.
31-51	Blank	
52	1 or 2	Crossfoot 1 = yes 2 = no.
53-80	Blank	
Card numbers 2-7 inclusive:		
28-30	002 to 007	Title card numbers.
31-80	50 characters maximum, left justified.	Title cards are continuous through 6 cards for a total of 300 characters.
Card number 8:		
28-30	008	Short title card number.
31-70	40 characters maximum	Short title.
71-80	Blank	
Card number 9:		
28-30	009	Source card number.
31-80	50 characters maximum	Source title.
Notes		
Card numbers 011-020:		
28-30	011 to 020	Note card numbers. One note is allowed per Matrix.
31-80	50 characters maximum, left justified.	Enter title continuously up to 500 characters. Do not use hyphens to continue to next card.

[1] There is no card number 10.

Card Format: ADD MATRIX, Operation Code AM — Concluded

Column number	Contents	Explanation
Footnotes		
Card numbers 111-193:		
28	1	1 = footnote — Treated as 3-digit card number
29	1-9	Footnote number — Treated as 3-digit card number
30	1-3	Footnote card number — Treated as 3-digit card number
31-80	50 characters maximum, left justified.	Footnote text — a maximum of 120 characters through 3 cards.
31-50	20 characters maximum	Footnote text — a maximum of 120 characters through 3 cards.

Card Format: ADD SERIES Operation Code (AS) Header

Column number	Contents	Explanation
Auto duplicate		
All cards columns 1-27:		
1- 4	TSDB	System identification.
5- 8	4 characters maximum, left justified.	Agency responsible for accuracy and security of data.
9-12	4 characters maximum, left justified.	Section of agency responsible.
13-19	Blank	
20-21	AS	Add series operation code.
22-27	6 digits, right justified	Matrix number, punch leading zeros.
Fields varying from card to card		
Card number 001:		
28-30	001	Card number.
31-50	20 digits maximum, left justified.	Series number.
51-52	00 to 12 or blank	Scalar Factor. Blanks are read as zeros.
53-54	-9 to 12	Floating point characteristic.
55-56	00 to 99	Data mask type code.
57-59	001 to 998 or 999	Variance allowed, expressed as a per cent, as determined by the data source, or 999 = no edit requested.
60-66	Blank	
67-68	2 digit code	Report frequency.
69-71	3 digits	Expected time of update.
72-80	Blank	
Card number 002:		
28-30	002	Card number.
31-50	20 digits maximum, left justified.	Series number.
51-60	10 characters, left justified	Unit of measure, dollars, bushels, tons, etc.
61-80	20 characters, left justified	**TITLE**—first part.
Card number 003:		
28-30	003	Card number.
31-50	20 digits maximum, left justified.	Series number.
51-80	30 characters, left justified	**TITLE**—Second part.

Card Format: Enter Data, Operation Code (ED)

Column number	Contents	Explanation
Auto duplicate		
All cards columns 1-27:		
1- 4	TSDB	System identification.
5- 8	4 characters maximum, left justified.	Agency responsible for accuracy and security of data.
9-12	4 characters maximum, left justified.	Section of Agency responsible.
13-19	Blank	
20-21	ED	Operation code.
22-27	6 digits, right justified	Matrix No., punch leading zeros.
Fields varying from card to card		
28-30	001 to 999	Card numbers, to be sequential.
31-50	20 digits maximum	Series number, left justified.
51-56	6 digits	Reference date (yr., mo., day).
57-66	10 digits maximum, right justified.	Data.
67	1, 2, 3, 4, or 5	Type of data entry. 1 — Projection into future. 2 — Estimate of current figure. 3 — Current figure (update). 4 — Revision of current figure. 5 — Initial entry of data.
68	1 digit	Security level.
69-70	4 digits, maximum	Footnote indicators. A data point may have upto 4 footnotes.
73	Blank or 9	Blank if variance allowed will be checked by computer. For variance override, enter 9.
74-80	Blank	(Not used)

CATALOGUE 12-531 OCCASIONAL

CANSIM
Users' manual for data retrieval and manipulation

1972

Statistics Canada Statistique Canada

STATISTICS CANADA
General Time Series Staff

CANSIM: USERS' MANUAL FOR DATA RETRIEVAL AND MANIPULATION

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PROLOGUE

This manual describes part of a system which had its inception in a data storage, retrieval and manipulation computer package developed by M.C. McCracken. This prototype system was developed in 1964 at Southern Methodist University, where there was a need to collect and manipulate time series data in order to estimate parameters for an econometric model. The first version of the system used card images stored on magnetic tape and a small retrieval program which simply reformatted the data for input to statistical utility programs. In January 1965 the development of a more advanced system was started and a working version of this new system was in use by April of 1965.

The Economic Council of Canada provided funds for the development of an expanded system on a CDC 3400 computer at the University of Montreal. The expanded version has been in use, with modifications, since September 1965. In May 1966 the Bank of Canada became the first agency other than the Council to make use of the system and during the Summer and Fall of 1966 the National Energy Board and the Department of Finance also began using the system for maintenance and manipulation of the data necessary in their analytical operations.

In November of 1966 Statistics Canada accepted the responsibility for the entry of data into the base and maintenance of the existing programs. The Economic Council and the Bank of Canada expressed the hope that this system would eventually be modified into a true information system for use in the operations of statistical agencies of the Canadian government.

As a result, in July 1967, an inter-departmental team was set up under the direction of Dr. T.J. Vander Noot to design and implement a national data base for socio-economic data. This manual comprises one volume of the documentation for this system.

TABLE OF CONTENTS

INTRODUCTION

CANSIM is designed to provide efficient and economic management of a large volume of time-series data. The programs for data storage, retrieval, and manipulation comprising the system were written for the IBM 360/65. Management, control, and maintenance of the system are the responsibility of Statistics Canada but accuracy of the included data is the responsibility of the agency compiling it.

Operation of the programs is supervised by the General Time Series Staff.

The subject of this manual is the retrieval sub-system of CANSIM which provides for the retrieval of data stored in the base on printouts, or in machine readable formats (tape or in interim direct access storage) suitable for input to data manipulative or table formatting routines.

Release of this revised manual signals the completion of Phase 2.1 in the development of CANSIM, the computerized time series data bank of Statistics Canada. Phase 1 programs, which comprise the data storage and housekeeping subsystems,[1] and a minimal retrieval capability, have been operational since July 1969 when the availability of data from CANSIM was first publicly announced.

An important option planned for inclusion in Phase 2, which was postponed, is the writing of an integrated manipulative language for use with terminals to the CANSIM computer. Consideration is being given to the acquisition of one or more languages already developed and in use at computer service bureaus.

[1] A companion manual is available from Statistics Canada entitled "CANSIM: Operation Manual for Data Entry" (Catalogue 12-530 Occasional — $1.00) which deals with the clerical and machine procedures used for data entry, up-date and revision.

The following sections describe the data base, the manipulative programs available for use with data retrieval from the base, and the retrieval system. While it is contemplated that during fiscal 1972-73 the system will be resident at a service bureau and accessed by terminals, General Time Series Staff currently receives and actions all retrieval requests. Jobs are batched and submitted at close of business for execution overnight. The turnaround in General Time Series should normally not exceed 24 hours.

A description of the data base (including record formats and explanation of codes) is given in Section 2. Also included are descriptions of the matrix and series numbering system.

Section 3 is a description of the command languages used to retrieve the data, for manipulation or as computer printouts, and of the job control language. Samples of output formats are shown in Appendices.

Section 4 gives a description of the MASSAGER program and other existing utilities which are available for use with data retrieved from CANSIM.

Section 5 covers the use of the system by Statistics Canada, by other government agencies and by private customers.

The final section, Section 6 is a glossary of all words used in the command language or in the control cards.

Statistics Canada again acknowledges the substantial contribution made to CANSIM development by the Economic Council of Canada. The Bank of Canada also has contributed generously through the support and distribution of the MASSAGER program which is the manipulative capability most widely used in conjunction with CANSIM outside Statistics Canada.

DESCRIPTION OF THE DATA BASE

General

CANSIM contains time series, for the most part published by Statistics Canada. The contents of the data base at March 1, 1972 are shown in Table 1. This table is kept current and is printed periodically in the Canadian Statistical Review (Catalogue 11-003). For all series historical data are in the data base from 1946, or barring this, from the earliest year for which continuous data are available.

TABLE 1. Contents of the CANSIM Time Series Data Bank as of March 1, 1972

(By frequency, listed in order of sections in the Canadian Statistical Review, Statistics Canada Catalogue 11-003. Series are divided into "active" and "terminated")

Frequency / C.S.R. Section	Number of series in the *Canadian Statistical Review*			Number of supplementary series in CANSIM (See *Summary Reference Index*[1])				Number of terminated (T) series[2]				Number of series in CANSIM
	M	Q	Sub-total	M	Q	A	Sub-total	M	Q	A	Sub-total	Total
2. Population Statistics	**33**	**55**	**88**	**6**	**5**	**13**	**24**					**112**
Population		55			5	13						
Vital Statistics	33			6								
3. System of National Accounts	**216**	**567**	**783**	**44**	**488**	**1,863**	**2,395**		**392**	**714**	**1,106**	**4,284**
Income and Expenditure Accounts		405			60	1,044			376	684		
Domestic Product by Industry	216	50		44	126	155						
Productivity						350[3]						
Balance of International Payments		112			302	314			16	30		
4. Labour	**279**		**279**	**4,867**			**4,867**	**50**			**50**	**5,196**
Employment, Labour Income	162			4,483				50			50	
Labour Force Survey	79			382								
Unemployment Insurance Commission	8											
Time Lost in Work Stoppages	30			2								
5. Prices	**146**		**146**	**1,591**		**1,741**	**3,332**			**12**	**12**	**3,490**
Industry Selling Price Indexes	88			1,088		1,184				6		
General Wholesale Price Index	16					16						
Other Price Indexes	15			12		29						
Consumer Price Index	27			491		512				6		
6. Manufacturing	**344**	**1**	**345**	**316**			**316**	**164**			**164**	**825**
Inventories, Shipments, Orders	196			295				74				
Other	148	1		21				84				
7. Fuel, Power, Mining	**91**		**91**	**2**			**2**					**93**
8. Construction	**109**	**35**	**144**	**36**	**9**		**45**					**189**
Building Permits	16			9								
Starts and Completions	79	35		27	9							
Mortgage Loans	14											
9. Food and Agriculture	**62**	**70**	**132**	**1,372**	**7**	**4,490**	**5,869**	**47**	**4**	**44**	**95**	**6,096**
Fisheries	8											
Manufactured Food (including sugar production and sales)	19	19		1				6				
Agriculture	35	51[4]		1,371	7	4,490		41	4	44		
10. Domestic Trade	**158**	**56**	**214**	**37**	**39**		**76**	**130**		**2**	**132**	**422**
Retail Trade	113			10				113				
Wholesale Trade	16			17				13				
Credit	29	56		10	39			4		2		
11. External Trade	**229**		**229**	**127**	**125**		**252**	**79**			**79**	**560**
Merchandise Trade, by Country	64											
Merchandise Trade, by Commodity	165			28				79				
Trade of Canada, Special Table				99								
Exports					117							
Imports					8							
12. Transportation	**71**	**5**	**76**	**47**	**1**		**48**	**2**	**1**		**3**	**127**
13. Finance	**207**	**63**	**240**	**381**	**3,635**	**82**	**4,098**	**80**	**68**	**30**	**178**	**4,546**
Banking and Currency	102			229		7		7	2			
Security Issues and Retirements		23							7			
Security Prices	30	30		48	93	30		30		30		
Insurance	22	10						10	14			
Other	53				1			31				
Non-financial Institutions					3,447				44			
Taxation						42						
Selected Bond Yield				29	1	2		2	1			
Selected U.S. Economic Indicators[5]				75	93	1						
Total – All series	**1,945**	**852**	**2,797**	**8,826**	**4,309**	**8,189**	**21,324**	**552**	**465**	**802**	**1,819**	**25,940**

[1] Series included which have security codes other than "public" are so noted in the CANSIM Series Directory. Inquiries regarding such secured series should be directed to the data source.

[2] Terminated series (indicated by "T" in the CANSIM Series Directory), are series which are no longer active, but are considered by the data source to be of continuing interest.

[3] All series are confidential. Inquiries should be made to the National Output and Productivity Division, Statistics Canada.

[4] Two series are available thrice yearly (Indexes of Prices Paid by Farmers, and Farm Wages in Canada).

[5] Data are assembled and maintained on CANSIM by the Bank of Canada.

Structure

Each time series in the CANSIM base is entered as part of a matrix of similar files arranged in hierarchical fashion. An illustration might be a population table arranged as follows:

September, 1972

Table 1: population, by province (thousands)

year and month[1]	Canada	Nfld.	P. E. I.	N. S.	N. B.	Que.	Ont.	Man.	Sask.	Alta.	B. C.	Yukon	N. W. T.
1970 June	21,297	517	110	782	627	6,013	7,551	983	941	1,595	2,128	17	33
1971 June	21,569	522	112	789	635	6,028	7,703	988	926	1,628	2,185	18	35
1972 June	21,830	532	113	794	642	6,059	7,825	992	916	1,655	2,247	19	36
1970 Apr.	21,244	516	110	780	626	6,005	7,528	981	942	1,589	2,118	17	32
June	21,297	517	110	782	627	6,013	7,551	983	941	1,595	2,128	17	33
July	21,324	518	110	783	628	6,015	7,566	983	940	1,597	2,134	17	33
Oct.	21,400	519	111	784	628	6,021	7,613	982	933	1,607	2,152	17	33
1971 Jan.	21,465	519	111	785	630	6,017	7,656	984	927	1,616	2,168	18	34
Apr.	21,523	521	111	788	633	6,022	7,683	986	926	1,623	2,178	18	34
June	21,569	522	112	789	635	6,028	7,703	988	926	1,628	2,185	18	35
July	21,595	523	112	790	635	6,032	7,717	989	927	1,629	2,188	18	35
Oct.	21,668	526	112	791	638	6,041	7,748	989	924	1,638	2,206	19	36
1972 Jan.	21,731	528	112	793	640	6,047	7,777	989	919	1,644	2,227	19	36
Apr.	21,788	530	113	793	642	6,056	7,800	991	917	1,650	2,241	19	36
June	21,830	532	113	794	642	6,059	7,825	992	916	1,655	2,247	19	36

[1]As of the first of each month. Source: Estimated population of Canada, by province (91-201), Statistics Canada.

This table appears monthly in the Canadian Statistical Review. In the CANSIM data base, the time series (columns of data) have been restructured:

01 Total Canada

02 Newfoundland

02 Prince Edward Island

02 Nova Scotia

The entire "Table" is called a matrix. The "01" level within the matrix signifies that this time series is the total or summary measure. The "02" levels are thus subordinate in some way. Since data collected as a single time series are almost always interdependent with other data, the matrix arrangement allows a whole set of files to be updated or revised at the same time. Matrices also allow for a greater degree of internal verification of the data entered. For instance, in the above example, the "02" level entries (Provinces) must add to the "01" total level (Canada).

All retrievals are made by a single number which indicates the matrix and series desired. The numbering scheme is illustrated below in the sample Series Directory. This particular table is identified as Matrix 10.

Reference Documents

Summary Reference Index

The Summary Reference Index as the first of two information sources for CANSIM, provides matrix numbers for groups of time series which appear in, or relate to, existing publications. The publications for which data are currently in the system in full or in large parts are listed in the Table of Contents. CANSIM or MASSAGER numbers may be used for accessing and retrieving matrices or series on the CANSIM base.

The MASSAGER (or DATABANK) series identification numbers which also appear on the directory are not to be confused with CANSIM identification numbers. The retrieval in MASSAGER and UTILITY formats creates a tape with MASSAGER numbers to permit use of existing manipulative programs such as MASSAGER or MATOP.

Series Directory

The CANSIM Series Directory contains matrix and series titles and descriptive detail for series available from CANSIM (see sample below). It is used in conjunction with the Summary Reference Index to order series from Statistics Canada.

The matrix titles, sources and notes included in this Directory cover all time series in the CANSIM base as of the date of the printout. Supplements are released monthly.

Descriptive detail given for a matrix (roughly equivalent to "table"), used to identify the series in the matrix, includes the frequency and units, the base in the case of index numbers, whether seasonally adjusted or original etc. Where a major revision has occurred but the historical unrevised series continue to be of interest and are carried in the base, the series number is prefixed by "T".

A guide to use the Series Directory is given below.

CANSIM SERIES DIRECTORY (Sample)

SERIES DIRECTORY AS OF OCT. 2, 1972 MATRIX: 000010

First Matrix on this page

Matrix number(1) 000010 ESTIMATED XXXX OF CANADA BY PROVINCE, QUARTERLY, THOUSANDS

Matrix title

Source EST. XXXX OF CANADA BY PROV. (91-000), DBS

Matrix note ESTIMATES FOR CALENDAR QUARTERLY PERIODS, FROM JAN. 1946. QUARTERLY DATA RELATE TO JAN. 1, APR. 1, JULY 1, AND OCT. 1. FOR ESTIMATED XXXX BY PROVINCE, AS OF JUNE 1 FOR YEARS 1946 ONWARDS, SEE MATRIX 39. DATA PUBLISHED APPROXIMATELY 75 CALENDAR DAYS AFTER END OF REFERENCE QUARTER.

Agency and section responsible for this matrix. See Inquiries List. DBS 2 0000

SECURITY LEVELS

"PUBLIC"(2) published or publishable series.

"SECURE" series, cannot be retrieved without the approval of the responsible agency.

Series number (within matrix)	1	CANADA	46-01-00	PUBLIC	D 123456
	1.1	NEWFOUNDLAND	53-07-00	PUBLIC	D 123457
	1.1.1	ALBERTA	55-03-00	SECURE	D 123458
"T" before the series number indicates an unrevised, or discontinued series which is of possible continuing interest.	T1.20	QUEBEC	55-01-15	PUBLIC	D 123459

DATABANK number(1)

Starting date of series in the base (year, month, day)

(1) The CANSIM identification number (Matrix and series number), or the DATABANK identification number may be used to order series from CANSIM. The DATABANK number is used to manipulate data retrieved from CANSIM in MASSAGER, UTILITY, or RANDOM format. For detailed explanation see CANSIM Users Manual for Data Retrieval and Manipulation, Statistics Canada Catalogue No. 12-531 (revised, 1972).

(2) A list is available on request of PART-SEC series. These are PUBLIC series which contain one or more secured data points.

THE CANSIM RETRIEVAL SYSTEM

General Description

The CANSIM retrieval and manipulative language is designed for maximum flexibility, while at the same time staying within staff and time restrictions which exist for programming and analysis.

A problem with some command sets is that they were not designed to be added to, which meant that the entire structure of the language had to be revised if additional commands became necessary.

The CANSIM system provides for adding commands with minimum changes to previously existing commands. The retrieval command language described in this manual provides additional features which were not available with the previous issue of May 1969.

Since CANSIM is operational at the Federal Government Computer Services Bureau (CSB), any government department or agency may use the System. Arrangements must be made with Statistics Canada and Computer Services Bureau. A user code will be assigned to all authorized users of CANSIM.

Non-government users must submit their requests to the General Time Series Staff of Statistics Canada. All inquiries concerning the use of CANSIM should be directed to:

General Time Series Staff,
Statistics Canada,
Ottawa, K1A 0Z8
Telephone: 995-7406 Area Code: 613

Format and Retrieval Options

Four CANSIM Retrieval Command Cards (RSC1-RSC4) are required to retrieve series. All are standard 80 column cards. (See pages 3.8 and 3.9 for layout sheets). The formats and functions are described below.

1. RSC1: USER AND JOB IDENTIFICATION

This card, one per job, is identified by "RSC1" in columns 1-4. Each job must start with an RSC1 card. The entries identify the user and the job.

Column(s)	Contents	Description
1-4	RSC 1	Required System Identification.
5-8	ALPHANUMERIC	Required CANSIM User Code. Assigned by General Time Series Staff.
9-27	Blank	Reserved.
28-77	ANY CHARACTERS	Job Title. Any identification desired. Will appear only in listing of diagnostic and retrieval stages.
78-80	001-999, or Blank	Card sequence number. For safety, all cards in a job should be numbered.

2. RSC2: RETRIEVAL FORMAT

This card, one per job, is identified by "RSC2" in columns 1-4. Each job requires an RSC2 card. The entries in this card control the retrieval format, diagnostic request, accepting errors, and the type of identifier used.

Option	Column(s)	Contents	Description
	1- 4	RSC2	Required System Identification.
	5-16	RETRIEVE IN	Required key-word.
1	17-32	—	**FORMAT** The format to be specified here depends on the use for which series are being retrieved.
	17-26	MASSAGER-D	Creates a file on tape or disk with data in double precision. Serves as input to DATABANK-MASSAGER programs operational on an IBM System/360. Maximum number of data points which may be retrieved is 1200 per series. For record format see Appendix 1. For users with machines not compatible with IBM System/360, a BUILD or ADD Series Card Image tape may be provided which can be used to create a DATABANK file.
	17-26	MASSAGER-S	This format is identical to MASSAGER-D except that data are in single precision with a maximum of 2400 data points per series. Due to truncation some inaccuracy may occur if data points exceed six digits.
	17-23	UTILITY	Creates a file on tape or disk which can be used as input to FANTOM, MATOP, X-11 Seasonal Adjustment, GROPE (plotter), and to any such utility program for which the input may be described by a format card. For record format see Appendix 4.
	17-24	RANDOM-D	Creates a randomly accessible file on disk with data in double precision. Serves as input to the MASSAGER program with random access feature. Maximum of 3500 records or 2298 series on file. See Note on page 00. For record format see Appendix 5.
	17-24	RANDOM-S	Identical to RANDOM-D except data are in single precision. Due to truncation some inaccuracy may occur if data points exceed six digits.
	17-27	PUBLICATION	Creates a file on tape or disk containing data and all information stored in CANSIM for the series retrieved. It is intended for use with report generating programs for automating publications. For record format see Appendix 2.
	17-21	TABLE	Produces a printout of series in columns. Matrix titles, matrix notes, series titles and relevant footnotes are printed out. For sample, see Appendix 6.
	17-23	DISPLAY	Produces a printout of one series per page together with matrix title, matrix note, series title, relevant footnotes, and source. For sample, see Appendix 7.
	17-24	RE-ENTRY	Use of this format normally requires access to the CANSIM data entry program. It retrieves information to recreate the matrix header, series header and data points (security words are not retrieved). See Appendix 3 for record format.

2. **RSC2: RETRIEVAL FORMAT** — Concluded

Option	Column(s)	Contents	Description
2	33	—	**DIAGNOSTIC REQUEST**
			This option permits editing of CANSIM retrieval command cards without retrieving any series. Since the CANSIM base is not accessed, editing is syntactical only (can not check for missing series, proper starting dates, etc.).
		*	Enter * if you wish a diagnostic check only.
		Blank	Leave blank if you wish retrieval to continue provided **no** errors are found.
3	34	—	**ACCEPTING ERRORS**
			Retrieval of series is normally terminated when job encounters errors such as missing series or no match on dates. This option may be used to continue a job even though error(s) are encountered.
		*	Enter * if you wish job to continue although error(s) are encountered.
		Blank	Leave blank if you wish job to terminate on encountering an error.
4	35	—	**TYPE OF IDENTIFIER**
			Series from CANSIM may be retrieved with either the MASSAGER or CANSIM series number. Only **one** identification may be used within a job.
		M	Enter M, when using MASSAGER series number.
		Blank	Leave blank, when using CANSIM identification number.
	36-77	Blank	Reserved.
	78-80	002-999, or Blank	Card sequence number, if used.

3. RSC3: SERIES IDENTIFICATION AND OUTPUT CONTROL

This card is identified by "RSC3" in columns 1-4. Each job must have at least one RSC3 card.

Option	Column(s)	Contents	Description
	1- 4	RSC3	Required System Identification.
	5-10	—	**FROM MATRIX NUMBER** Identifies the matrix number of the series or range of series to be retrieved in columns 18-37 (Required only if retrieval by CANSIM identification number).
		Matrix number	Enter matrix number. **Right** justified.
		Blank	Blanks are not permitted on the first RSC3 card when using CANSIM series numbers. On subsequent cards, blanks are interpreted as "no change from previous card".
5	11-16	—	**TO MATRIX NUMBER** This option retrieves series or range of series from the FROM matrix number to the TO matrix number. (Applies only to retrieval by CANSIM identification number).
		Matrix number	Enter the TO matrix number. **Right** justified. The TO matrix number **must** be greater than the FROM matrix number.
		Blank	Leave blank if FROM-TO matrix option not used. **CAUTION**: This field must **never** be blank if using FROM-TO matrix option.
6	17	—	**ALL OR RANGE** This option permits retrieval of ALL series in a matrix; a RANGE of series in a matrix; a RANGE of series by MASSAGER numbers, or a specific series. Can be used in conjunction with the FROM-TO matrix option.
		A	Restricted to retrievals using CANSIM identification numbers. Retrieves ALL series in a single matrix, or ALL series as specified in the FROM-TO matrix option. **CAUTION**: Columns 18-37 must be blank. **N.B.** As a control option, a user may insert, in columns 66-69 (right justified), the maximum number of series to be retrieved. The use of this option is recommended when using ALL with the FROM-TO matrix option.
		R	May be used with either MASSAGER or CANSIM numbers. **MASSAGER** Enter the **first** MASSAGER number in range in columns 18-25 of this card, and the last MASSAGER number in range in columns 18-25 of the **next** card (the last MASSAGER number must be the only information on the card other than "RSC3" and card sequence number). See cclumns 18-25 below. **CAUTION**: The first **and** last MASSAGER numbers must be on CANSIM.

3. RSC3: SERIES IDENTIFICATION AND OUTPUT CONTROL — Continued

Option	Column(s)	Contents	Description
			CANSIM Enter the **first** series in range in columns 18-37 of this card, and the **last** series in range in columns 18-37 of the next card (the last series number must be the **only** information other than "RSC3" and card sequence number). **CAUTION**: (1) When a range of series is to be retrieved from a single matrix, the first and last series in range must be in the matrix. (2) When RANGE option is used in conjunction with the FROM-TO matrix option, no check is made whether the first or last series in range is in any of the requested matrices.
		Blank	Leave blank if ALL or RANGE option not used. Identify the series to be retrieved in columns 18-37.
7	18-37	—	**SERIES IDENTIFICATION**
	18-37	CANSIM number	Enter series number, left justified. The decimal, or period, is part of the series number so it **must** be entered — refer to Series Directory. **CAUTION**: Column 35 of **RSC2** must be **blank**.
	18-25	MASSAGER number	Enter alphabetic portion in column 18 and numeric portion right justified. **CAUTION**: There must be an "M" in column 35 of **RSC2** card, and FROM-TO matrix fields **must** be blank.
		Blank	Must be **blank** when used with ALL option.
8	38	—	**TABLE FORMAT — PAGE INDICATOR** This option applies only to series retrieved in Table format. It permits users to control the number of series (columns) to less than the standard seven per page. Cannot be used with RANGE, ALL, or FROM-TO matrix option.
		*	To control number of series to less than seven, enter * on any card which identifies the last series to appear on a page.
		Blank	Series are printed continuously, seven series per page.
9	39-45	—	**SECURITY** Series in CANSIM are classified as PUBLIC, PART-SEC, or SECURE (see Series Directory). PART-SEC series contain one or more secure data points; all data points in SECURE series are secure. The appropriate "Security Word" must be obtained from the data source — refer to Series Directory for Inquiries Directory.
	39-44	Public	The word "PUBLIC" must be entered, on the first RSC3 card, to retrieve any non-secure data points.
	39-45	"Security Word"	The "Security Word" must be entered to retrieve any secure data points (left justified).

3. RSC3: SERIES IDENTIFICATION AND OUTPUT CONTROL – Concluded

Option	Column(s)	Contents	Description
			CAUTION: The data source is notified each time secure data are retrieved or retrieval is attempted.
		Blank	Blanks are not permitted on the first RSC3 card of a job. On subsequent cards, blank is interpreted as "no change from previous card".
10	46-57	–	**TIME PERIOD OF DATA TO BE RETRIEVED** – This option controls the number of observations to be retrieved for a series, by means of a START and END DATE. The date is described as YYMMDD where: YY – last 2 digits of the year. MM – 01 for January, 02 for February, etc. DD – 2 digit day of the month, 01-31. Refer to Series Directory for START DATE.
	46-51	YYMMDD	**START DATE** – Indicates the date from which data are to be retrieved. For annual series, enter only the YY. For quarterly and monthly series, enter only the YYMM. Series with frequency greater than monthly, enter YYMMDD.
			NOTE: To retrieve a single data point, repeat START DATE in END DATE (columns 52-57).
		******	Enter **6** asterisks to retrieve data from the earliest date available.
		Blank	Blanks are not permitted on the first RSC3 card of any job. On subsequent cards, blank is interpreted as "no change from previous card".
	52-57	YYMMDD	**END DATE** – Indicates the date to which data are to be retrieved. Complete as per START DATE.
		******	Enter **6** asterisks to retrieve data to the most current date available.
		Blank	Blanks are not permitted on the first RSC3 card of any job. On subsequent cards, blank is interpreted as "no change from previous card".
11	58-65	–	**RENAME** This option allows the user to change the MASSAGER number on outputs to a more meaningful name. The use of this option with Table format replaces the column number. See Appendix 6.
		Any characters	Enter any name you desire. May be left or right justified. Embedded blanks are allowed.
		Blank	Leave blank if **no** change desired.
	66-69	Numeric	Number of series. Used in conjunction with ALL option – see column 17.
	70-77	Blank	Reserved.
	78-80	003-999, or Blank	Card sequence number, if used.

4. RSC4: TERMINATE JOB

Option	Column(s)	Contents	Description
	1 - 4	RSC 4	Required System Identification.
	5 - 77	Blank	Reserved.
	78 - 80	004 - 999, or Blank	Card sequence number, if used.

RETRIEVE SERIES FROM CANSIM (RSC 1, 2, AND 4)

DATE

R S C 1 (1-4)

(5-8) CANSIM USER CODE

(9-27) RESERVED

(28-52) JOB TITLE

(53-77) JOB TITLE

(78-80) CARD SEQ.

R S C 2 (1-4)

R E T R I E V E I N (5-16)

(17-32) FORMAT

(33) DIAGNOSTIC REQUEST OPTION

(34) ACCEPTING ERROR OPTION

(35) TYPE OF IDENTIFIER

(36-77) RESERVED

(78-80) CARD SEQ.

FORMAT OPTIONS –

- MASSAGER-D
- MASSAGER-S
- UTILITY
- TABLE
- DISPLAY
- RANDOM-D
- RANDOM-S
- RE-ENTRY
- PUBLICATION

These four format options are restricted to Annual, Quarterly, Monthly and Weekly series.

R S C 4 (1-4)

(5-77) RESERVED

(78-80) CARD SEQ.

2700-30: 15-6-72

DATE

RETRIEVE SERIES FROM CANSIM (RSC 3)

JOB CODE

CODED BY

CARD IDENT.	FROM MATRIX NO.	TO MATRIX NO.	A OR R	SERIES IDENTIFICATION		P I	SECURITY WORD	START DATE	END DATE	RENAME OPTION	NUMBER OF SERIES	RESERVED	CARD SEQ.
					CANSIM (18-37)			Y Y M M D D	Y Y M M D D				
				MASSAGER (18-25)									
1 2 3 4	5 6 7 8 9 10	11 12 13 14 15 16	17	18 19 20 21 22 23 24 25	26 27 28 29 30 31 32 33 34 35 36 37	38	39 40 41 42 43 44 45	46 47 48 49 50 51	52 53 54 55 56 57	58 59 60 61 62 63 64 65	66 67 68 69	70 71 72 73 74 75 76 77	78 79 80
R S C 3													
R S C 3													
R S C 3													
R S C 3													
R S C 3													
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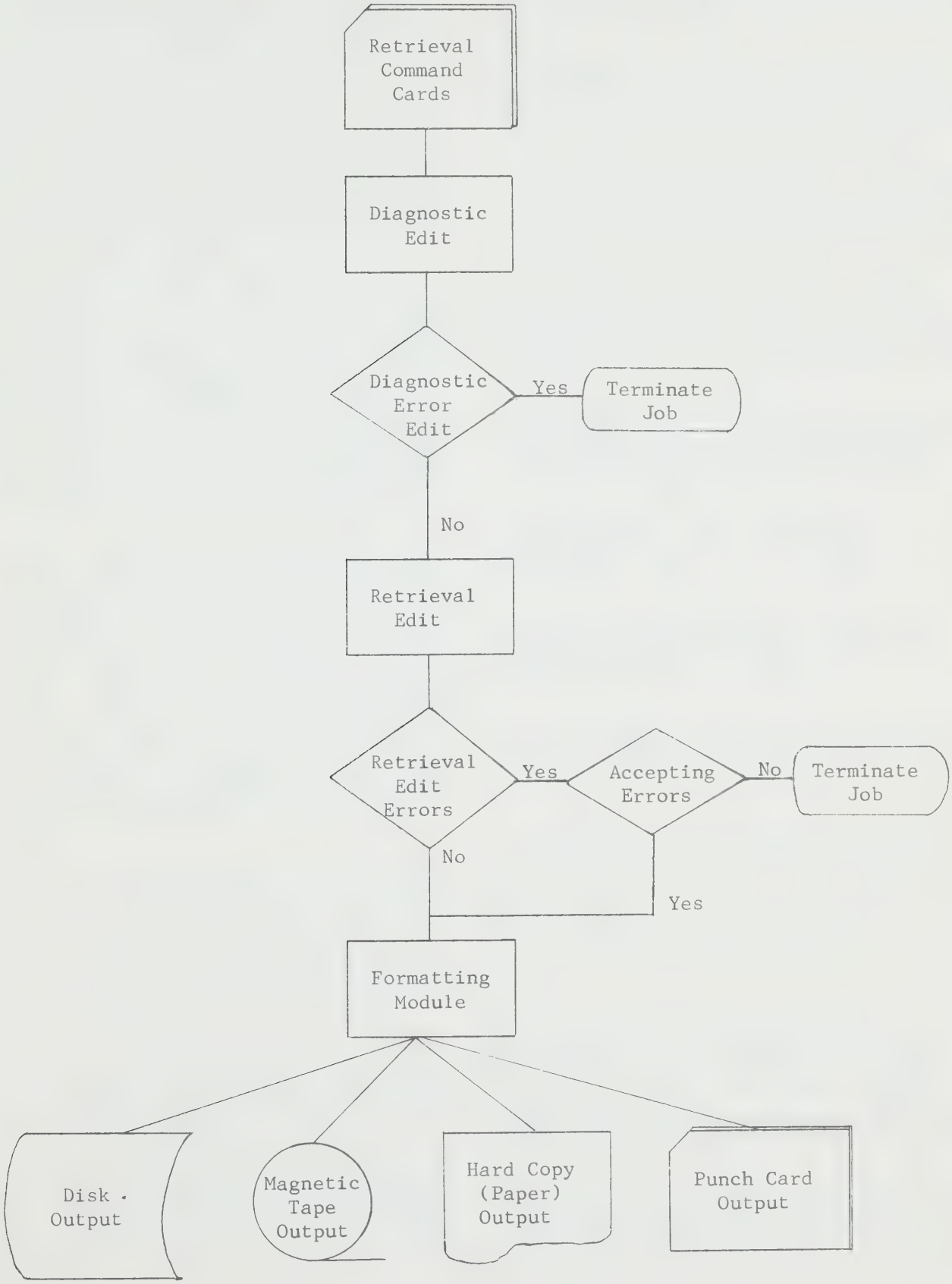
R S C 3													
1 2 3 4	5 6 7 8 9 10	11 12 13 14 15 16	17	18 19 20 21 22 23 24 25	26 27 28 29 30 31 32 33 34 35 36 37	38	39 40 41 42 43 44 45	46 47 48 49 50 51	52 53 54 55 56 57	58 59 60 61 62 63 64 65	66 67 68 69	70 71 72 73 74 75 76 77	78 79 80

2700-30 8-3-72

SCHEMATIC DEPICTING DECISIONS AND ACTIONS TAKEN



Error Messages

This System provides a two-stage edit of retrieval command cards. Any error found during the diagnostic edit (first stage) may cause the job to abort at the **end** of this stage. The command cards will be listed and the fields in error will be underlined and "** ERROR **" and/or "** WARNING **" will follow. No job will be processed beyond this first stage until the command cards with ** ERROR ** are corrected. Command cards with ** WARNING ** imply that the error is not critical and will not cause the job to abort at the end of the first stage. However, the cards with ** WARNING ** should be examined to determine if the error has any bearing on the end results.

During the retrieval edit (second stage) two outputs are created. The routine for the first output allocates the "S" sequence number to all **supplied** RSC cards and assigns a "G" sequence number to all **generated** RSC3 statements. Thus, in a single series request, a generated RSC3 statement will appear below the print line of the supplied RSC3 card. When the FROM-TO matrix option is used with a series range or individual series, RSC3 statements will be generated for each and every series which can be retrieved. Serious errors encountered during this stage will cause the job to abort.

In the routine for the second output the command card(s) in error will be referenced by the "S" number and be preceded with either an "R" or "W". "R" means that the transaction was rejected due to a serious error; "W" is a warning that a minor error was encountered. "R" type errors must be corrected before the job is resubmitted. If you are willing to accept errors (R or W) and want the job to continue, use the "accepting error" option (See **RSC2** card). Remember, this option applies to the "job" rather than to an individual series. If you do not understand the significance of this option, contact General Time Series Staff, Statistics Canada, Ottawa K1A 0Z8, Phone (Area Code 613) 995-7406.

All users of CANSIM submitting jobs independently must have a User Code which identifies them as having authority to retrieve data, or to enter and retrieve data from CANSIM. An attempt to retrieve data from CANSIM with an invalid Computer Services Bureau code or CANSIM User Code will result in the job being flushed without initiating any of the CANSIM programs.

'R – MATRIX NOT ON BASE' – The matrix number specified in the matrix number field of the RSC3 card could not be found on the CANSIM base. Check the Series Directory, correct and resubmit.

'R – FROM MATRIX NOT ON BASE' – The matrix number specified in the FROM matrix number field of the RSC3 card could not be found on the CANSIM base. Check the Series Directory, correct and resubmit.

'R – TO MATRIX NOT ON BASE' – The matrix number specified in the TO matrix number field of the RSC3 card could not be found on the CANSIM base. Check the Series Directory, correct and resubmit.

'R – SERIES NOT IN MATRIX' – The series number specified in the series number field of the RSC3 card could not be found in the matrix specified. Check the Series Directory, correct and resubmit.

'R – FROM SERIES NOT IN MATRIX' – The series number specified in the FROM series number field of the RSC3 card could not be found in the matrix specified. Check the Series Directory, correct and resubmit.

'R – TO SERIES NOT IN MATRIX' – The series number specified in the TO series number field of the RSC3 card could not be found in the matrix specified. Check the Series Directory, correct and resubmit.

'R – RANGE OF MASSAGER NUMBERS NOT ON BASE' – None of the MASSAGER numbers in the range requested could be found on the CANSIM base. Check the Series Directory, correct and resubmit.

'R – MASSAGER NUMBER NOT ON BASE' – The MASSAGER number requested could not be found on the base. Check the Series Directory, correct and resubmit.

'R – FROM MASSAGER NUMBER NOT ON BASE' – The **first** MASSAGER number in range specified could not be found on the CANSIM base. Check the Series Directory, correct and resubmit.

'R – TO MASSAGER NUMBER NOT ON BASE' – The **last** MASSAGER number in range specified could not be found on the CANSIM base. Check the Series Directory, correct and resubmit.

'W – HIGHER LEVEL DATA NOT RETRIEVED – -------DATAPOINTS REPLACED BY ZERO/SEC' – The supplied security or the word PUBLIC was used in retrieving the data, however data with a higher security level exists in this series. If the data is required, check with the responsible Agency for the security word, correct retrieval card, and resubmit.

'R – INVALID SECURITY WORD, PUBLIC DATA ONLY RETRIEVED-------DATAPOINTS REPLACED BY ZERO/SEC' – The supplied security word does not match either the security words in the matrix or the word in the series headers. If the data is required, check with the responsible Agency for the proper word, correct the retrieval card and resubmit.

'R – START DATE INCOMPATIBLE, SUBSTITUTING DATE--------' – The supplied start date does not match any reference date for this series. If the substituted date is incorrect, check with the subject

matter area responsible for the data, obtain the correct reference date, correct retrieval card and resubmit.

'R – END DATE INCOMPATIBLE, SUBSTITUTING DATE--------' – The supplied end date does not match any reference date for this series. If the substituted end date is incorrect, check with the subject matter area responsible for the data, obtain the correct reference date, correct retrieval card and resubmit.

'R – START-END DATE OUT OF RANGE, NO DATA RETRIEVED' – The supplied start-end dates are either both prior to or both after the period of data available for this series. Check the Series Directory for the start date, correct the retrieval card and resubmit.

'R – NO DATA IN SERIES' – The series header information has been entered on the base, however, no data is currently available. Check with General Time Series Staff for data availability.

'W – ALL SERIES NOT RETRIEVED. LIMITED TO NUMBER SPECIFIED' – Number of series retrieved limited to quantity specified in columns 66-69 of RSC3 card.

'R – REPORT FREQUENCY NOT COMPATIBLE WITH MASSAGER' – The Massager format permits only Annual, Quarterly, Monthly or Weekly series to be retrieved. If an attempt is made to retrieve a series with another frequency, the request is ignored and this message printed out.

'R – NUMBER OF DATA POINTS EXCEEDS LIMIT' – The number of data points allowed by the MASSAGER program for one series exceeds 1200 in double precision or 2400 in single precision.

'R – NUMBER OF RECORDS ON RANDOM FILE EXCEED 3500' – Reduce the number of series requested – see explanatory note. If the retrieval request cannot be split up contact the Supervisor, CANSIM programming unit, Computer Systems Development Division, Statistics Canada, Telephone 992-7967 or 996-5366, area code 613.

'R – NUMBER OF SERIES IN RANDOM FILE EXCEED 2298' – Reduce the number of series requested – see explanatory note. If the retrieval request cannot be split up contact the Supervisor, CANSIM programming unit, Computer Systems Development Division, Statistics Canada, Telephone 992-7967 or 996-5366, area code 613.

Note: The upper limit for RANDOM file is either 2298 series **or** 3,500 records. The number of records per series depends on the number of data points retrieved. The first record of any series accommodates 112 data points, and 122 on subsequent records. For data in double precision reduce number of data points to 56 and 61 respectively.

'JOB TERMINATED – SYSTEM ERROR' – Save all printouts associated with the run and contact the Supervisor, CANSIM programming unit, Computer Systems Development Division, Statistics Canada 992-7967 or 996-5366, area code 613.

Catalogued Procedure for the CANSIM Retrieval Package

STATEMENT	USAGE
PROC	is the first control statement in the catalogued procedure and is used to assign default values to the symbolic parameters in the procedure. (CANSIM retrieval procedures are: DIAGNOS, DIRECTR, UTILITY, GENFORM, TABLE, PUBLICT, DISPLAY, REENTRY, MASFORM, and RANFORM).
EXEC	PGM = CANRET(XX), specifies the program name. 'XX' specifies the version number.
STEPLIB DD	DSN = STC63.P536.PROGLB, partitioned data set containing the CANSIM load library.
CANROB DD	Temporary work file.
CANR1AB DD	DSN = STC63.P536.XXXX2 permanent CANSIM file.
CANR2B DD	SYSOUT = A, a sequential message data set, for displaying edited CANSIM retrieval commands and generated retrieval commands.
CANR2D DD	DSN = &&EDITRC, a sequential work data set containing edited CANSIM retrieval commands.
CANR2E DD	DSN = &&GENRC, a sequential work data set containing generated CANSIM retrieval commands.
CANR2H DD	DSN = STC63.P536.XXXX3 permanent CANSIM file.
CANR3CA DD	SYSOUT = A, defines a sequential data set for output of the Random format availability index; required by the RANFORM procedure.
CANR3CB DD	DSN = &&CANDIR, defines a random access data set for the Random format directory; required by the RANFORM procedure.
CANR3CC DD	DSN = &&RANSER, defines a random access data set for the Random format file; required by the RANFORM procedure.
CANR3E DD	Temporary work file.
CANR3F DD	SYSOUT = A, defines a sequential data set for output of the CANSIM series directory; required by the DIRECTR procedure.
CANR3H DD	DSN = &&UTILITY, defines a sequential data set for Utility format; required by the UTILITY procedure.
CANR3K DD	DSN = &&BDAN, defines a temporary random access work data set for Table format: required by the TABLE procedure.
CANR3M DD	SYSOUT = A, defines a sequential data set for output of Table format; required by the TABLE procedure.
CANR4D DD	SYSOUT = B, defines a sequential data set for output in Re-entry format; required by the REENTRY procedure.
CANR4E DD	DSN = &&PUBFM, defines a sequential data set for Publication format; required by PUBLICT procedure.
CANR4F DD	SYSOUT = A, defines the output for Display format; required by the DISPLAY procedure.

Catalogued Procedure for the CANSIM Retrieval Package — Concluded

STATEMENT	USAGE
CANR4HA DD	DSN = MASSAGER, defines a sequential data set for Massager format; required by the MASFORM procedure.
CANR4HB DD	SYSOUT = A, defines a sequential data set for output of the Random format availability index; required by the MASFORM procedure.
CANR8A DD	DSN = STC63.P536.XXXX4, permanent CANSIM file.
CANR9AA DD	DSN = STC63.P536.XXXX5, permanent CANSIM file.
CANR9AB DD	SYSOUT = A, defines a sequential message data set for output of the error messages.
CBASE DD	DSN = STC63.P536.CANSIM, defines a random access data set for the CANSIM base.
SYSOUT DD	SYSOUT = A, defines a sequential data set for output of system messages.
SYSUDUMP DD	SYSOUT = A, defines a sequential data set for output of a core dump in problem runs.

Use of CANSIM Catalogued Procedure

STATEMENT	USAGE
JOB	THIS statement initiates the job. The TIME and REGION parameters must be specified.
COPY	THIS statement instructs the operating system to load in an inline CANSIM catalogued procedure. It must precede the EXEC statement. /*COPY CATLG.STC63.COPYLB (procedure name)
EXEC	THIS statement specifies the procedure name to be executed and the output data set optional parameters. // EXEC procedure name [,see procedure options]
SYSIN DD	THIS statement defines the control data set. The statement should be //SYSIN DD * if the control statements are contained in a card file.
/*	END of card input
//	END of job

Procedure Names:

DISPLAY	Display format
MASFORM	Massager format
RANFORM	Random format
PUBLICT	Publication format
REENTRY	Re-entry format
UTILITY	Utility format
TABLE	Table format
DIAGNOS	Diagnostic run

Procedure Options

[,option name1=option1, option name2=option2, ...,option nameN=optionN]

ODSN THIS parameter is used to modify the output data set name. If not specified it uses the default name.

PROCEDURE	DEFAULT
MASFORM	MASSAGER
RANFORM	'&&RANSER'
PUBLICT	'&&PUBCAT'
UTILITY	UTILITY

DDSN THIS parameter is used to modify the directory data set name in the RANFORM procedure. If not specified it will default to '&&RANDIR'.

OUNIT THIS parameter is used to specify the physical unit used for the output data set. If not specified the default unit will be used.

PROCEDURE	DEFAULT
MASFORM	'(9TRACK,,DEFER)'
RANFORM	SYSDA
PUBLICT	SYSDA
UTILITY	'(9TRACK,,DEFER)'

Procedure Options — Continued

DUNIT THIS parameter is used to specify the physical unit used for the directory data set in the RANFORM procedure. If not specified it will default to SYSDA.

ONREC THIS parameter is used to specify the number of blocks of output expected on the output data set. If not specified the default value will be used. If tape output is specified this parameter is ignored.

PROCEDURE	DEFAULT
MASFORM	100
RANFORM	3500
PUBLICT	1200
UTILITY	100

DNREC THIS parameter is used to specify the number of directory blocks expected on the directory data set in the RANFORM procedure. If not specified it will default to 20 blocks.

ODISP THIS parameter is used to specify the disposition of the output data set. If not specified the default values will be used.

PROCEDURE	DEFAULT
MASFORM	'(NEW,KEEP)'
RANFORM	'(NEW,PASS)'
PUBLICT	'(NEW,PASS)'
UTILITY	'(NEW,KEEP)'

DDISP THIS parameter is used to specify the disposition of the directory data set in the RANFORM procedure. If not specified it will default to '(NEW,PASS)'.

OVOL THIS parameter is used to specify the volume parameter of the output data set. If not specified the volume parameter is omitted, in which case the system will assign a free tape or space on a free direct access device, whichever is appropriate.

PROCEDURE	DEFAULT
MASFORM	Omitted
RANFORM	Omitted
PUBLICT	Omitted
UTILITY	Omitted

Examples of volume parameters:

OVOL = 'Volume serial number'

DVOL THIS parameter is used to specify the volume parameter of the directory data set in the RANFORM procedure. If not specified the volume parameter is omitted, in which case the system will assign space on any free direct access device.

Examples of volume parameters:

DVOL = 'Volume serial number'

Calculation of ONREC and DNREC.

METHOD 1

$$(O_1 + F)/E + (O_2 + F)/E + (O_3 + F)/E + \ldots + (O_N + F)/E = B$$

FILE	F	E	Approximate
&&RANSER (SP)	121	112	N x 3 = B
(DP)	65	56	N x 6 = B
&&PUBCAT	119	120	N x 3 = B
&&UTILITY	11	12	N x 2 = B

METHOD 2

$$(N + F)/E = B$$

FILE	F	E
&&RANDIR	116	115

METHOD 3

FILE	
MASSAGER	1 physical record per series

DEFINITION OF VARIABLES

B = number of whole blocks
O = number of entries in the series
F = correction factor for partial blocks
E = number of entries per block
N = number of series

MANIPULATIVE PROGRAMS AVAILABLE FOR USE WITH DATA RETRIEVED FROM CANSIM

1. DATABANK

The DATABANK program is designed to maintain a large number of economic time series on a magnetic tape. Generally, this restricts the number of series that can be handled efficiently on one tape to about 10,000. The program allows for the addition, deletion and editing of any series. The data can also be listed, indexed and copied onto other tapes. In other words, the program performs those operations which fall into the general class of file maintenance. The system is designed to work with **any** data which is arranged **or** arrangeable in a time series format.

2. MASSAGER

The MASSAGER program carries out statistical manipulations of data, accepts input from DATABANK tapes, CANSIM tapes or from cards. For sample, see Appendix 8.

Retrieved series are arrayed as columns in core storage and by a sequence of "commands" the columns are manipulated as desired. The commands include simple operations on a single series (column) such as square roots, logarithms, etc., and complex operations on several variables or columns such as multiple regressions, plots, etc. A partial list of operators is given in Table 1.

TABLE 1. MASSAGER Operation Codes

01 $\log_e x$	17 index	32 rank values
02 $\log_{10} x$	18 collapse	33 three-group values
03 sin x	19 c + x	34 instrumental variables regression
04 cos x	20 scaling	35 % change
05 x^w	21 x + y	36 weighted moving sum
06 e^x	22 x − y	37 output by variable
07 random no. (0, 1)	23 x*y	38 output by observation
08 dummy (1, 0....)	24 x/y	39 truncation
09 time trend	25 move	40 calls user-supplied subroutine
10 constant term	26 squeeze out	41 user-supplied subroutine XXX1
11 x_t	27 multiple plot	42 user-supplied subroutine XXX2
12 x_{t-k}	28 plot	43 user-supplied subroutine XXX3
13 1/x	29 multiple regression	44 combined operations
14 cumulator	30 three-pass least squares	46 change location
15 c*x	31 nonlinear regression	47 row summation
16 $\sqrt{x}$		

3. MATOP

The MATOP program was originally written in Statistics Canada. Other versions have since been developed with added features. It accepts input from DATABANK tapes, CANSIM tapes or from cards. The data may be entered in memory as columns, rows or as a matrix. The program carries out mathematical and statistical manipulations of data. A partial list of operations is given in Table 2.

TABLE 2. MATOP Operation Codes

Description	Oper. Code (Cols. 11-12)
Relocation and Transformation Operations:	
Interchange	06
Duplicate	07
Selection of Elements	10
Sorting	11
Transpose	18
Diagonal Matrix from Row or Column	26
Row or Column from Principal Diagonal	27
Reverse Row/Column Order	39
Special MATOP Sort	12
Arithmetic Operations:	
Addition	01
Subtraction	02
Multiplication	03
Division	04
Square Roots	05
Logarithm (base e)	08
Exponential Function	09
Summation over Rows or Columns (actual values)	14
Summation over Rows or Columns (absolute values)	15
Rounding	29
Cumulative Row Sums	32
Cumulative Column Sums	33
Cumulative Row Products	34
Cumulative Column Products	35
Mathematical and Statistical Operations:	
Matrix Multiplication	19
Matrix Inversion	20
Solution of Linear Equations System	21
Direct Least Squares	22
Product Moment Correlation Coefficients	23
Norm and Trace	25
Moving Average	36
Moving Sum	37
Weighted Moving Average	38

4. FANTOM

This package of precoded sub-routines serves basically the same purpose as MATOP. It has been rewritten with free form English language commands. For sample, see Appendix 9. A list of operation codes appears as Table 3.

TABLE 3. FANTOM Operation Codes

Operation code	Description
	Manipulative
COMPH	Select the greater of corresponding elements of two matrices
COMPL	Select the smaller of corresponding elements of two matrices
COPY	Copy a matrix
INTER	Interchange two matrices
RSORT	Sort row elements in ascending order
CSORT	Sort column elements in ascending order
TRANS	Transpose
REVCOL	Reverse column order
REVROW	Reverse row order
ROUNDL	Round to left of decimal point
ROUNDR	Round to right of decimal point
KSORTA	Sort rows on column key ascending
KSORTD	Sort rows on column key descending
VTOD	Vector to diagonal
	Arithmetic and Transformation
ADD	Add corresponding elements of two matrices
SUB	Subtract corresponding elements of two matrices
MULT	Multiply corresponding elements of two matrices
DIV	Divide corresponding elements of two matrices
DIV1	Divide corresponding elements of two matrices
DIV2	Divide corresponding elements of two matrices
COMPH	Select the greater of corresponding elements of two matrices
COMPL	Select the smaller of corresponding elements of two matrices
SQRT	Take square roots
SQRT1	Take square roots
SQRT2	Take square roots
NLOG	Take natural logs
NLOG1	Take natural logs
NLOG2	Take natural logs
CLOG	Take common logs
CLOG1	Take common logs
CLOG2	Take common logs

TABLE 3. FANTOM Operation Codes — Continued

Operation code	Description
	Arithmetic and Transformation — Concluded
EXP	Take anti-logs
ROWSUM	Row summation
ARSUM	Row summation (absolute values)
COLSUM	Column summation
ACSUM	Column summation (absolute values)
CRSUM	Cumulative row summation
CCSUM	Cumulative column sum
CRPROD	Cumulative row products
CCPROD	Cumulative column products
ROUNDL	Round to left of decimal point
ROUNDR	Round to right of decimal point
	Mathematical and Statistical
MMULT	Matrix multiplication
TRANS	Transpose
MSUM	Moving sum
MAV	Moving average
WMAV	Weighted moving average
INV	Matrix inversion
DINV	Matrix inversion with determinant
SEQNS	Solution of simultaneous linear equations
DLS	Direct least squares estimates
DLS1	Direct least squares estimates
DLS2	Direct least squares estimates
DLS3	Direct least squares estimates
DLSO	Direct least squares estimates through origin
DLSO1	Direct least squares estimates through origin
DLSO2	Direct least squares estimates through origin
DLSO3	Direct least squares estimates through origin
CORR	Product moment correlation coefficients
COLMA	Collapse monthly series to annual
COLMQ	Collapse monthly series to quarterly
COLQA	Collapse quarterly series to annual
GRT	Growth rate triangles

TABLE 3. FANTOM Operation Codes — Concluded

Operation code	Description
	Miscellaneous
CONST	Introduce a constant
IFLOW	Compare low and branch
IFEQ	Compare equal and branch
IFHIGH	Compare high and branch
DUMP	Print matrix on detection of control card errors
ROUNDL	Round to left of decimal point
ROUNDR	Round to right of decimal point
LOOP	Execute the specified set of instructions the number of times indicated
CALL	Call in the specified subroutine
FUNC	Define the specified set of instructions as a subroutine

5. X-11 Seasonal Adjustment

This widely used routine from the U.S. Bureau of the Census is the standard adjustment in Statistics Canada. Options available include a choice of monthly or quarterly programs, and of multiplicative or additive adjustments. Seasonal adjustment by the X-11 method is also available as a user option in the MASSAGER and MATOP programs.

USE OF THE SYSTEM

The CANSIM system can be used to store time series and for retrieval and manipulation of data. Data from CANSIM may be retrieved by anyone in the formats described in Section 3. Retrieval of secured series requires the approval of the responsible department or agency. Storage of time series is presently restricted to government departments and agencies, and arrangements should be made with the General Time Series Staff.

Job Submission Procedure

All requests for retrieval should be forwarded to the General Time Series Staff and it is the responsibility of the user to ensure that retrieval cards or request forms are prepared as outlined in Section 3 of this manual. If keypunching facilities are not available, arrangements may be made with the General Time Series Staff.

At the present time, all retrieval requests are batched and executed overnight. For requests already key-punched, the turn-around should not normally exceed 24 hours.

Retrieval Costs

Non-governments Users

Less than 1,000 series:

15¢ per series — minimum of $5.00 for TABLE or DISPLAY format

minimum of $25.00 for output on tape (user supplied).

1,000 series or more: computer cost plus 50% (any output).

Government Users

Computer cost plus 10% (any output).

Agreement to Purchase Form

Customers purchasing data on cards or tape may be requested to sign an agreement form. Statistics Canada does not guarantee that data purchased are free from error and its use in any matter is entirely at the risk of the purchaser. Requests for Purchase Agreement forms and enquiries should be directed to General Time Series Staff.

GLOSSARY

Data Base ..... A group of records (individual series) having a common coding and format.

Data Point ..... Refers to a single observation for a series, for example, population of Ontario for the 2nd quarter in 1972.

Diagnostic ..... A syntactical edit of the user supplied retrieval command cards will be carried out. Any serious violations will result in job termination.

Directory ..... A listing of Matrices and Series included in the base is called the Series Directory. Users may obtain these directories from General Time Series Staff.

FORMAT:

Massager-D ..... A file of the requested series in double precision (contains all significant digits held on the data base). This format may be used with manipulative programs such as MASSAGER or MATOP.

Massager-S ..... A file of the requested series in single precision (contains 6 significant digits, if the data point contains more than 6 significant digits use MASSAGER-D). This format may be used to manipulative programs such as MASSAGER or MATOP.

Utility ..... A file of the requested series in a standard general purpose format of Statistics Canada. It can be used as input to MASSAGER, MATOP, X-11 Seasonal Adjustment, FANTOM, GROPE (PLOTTER) and to any program where the input is described by a format card.

Publication ..... A file of the requested series which is used primarily as input to report generating programs to produce publications. It contains pertinent matrix and series information along with the data.

Table ..... This format produces a "working table" printout with which the user may examine the content and detail of the base. A maximum of seven columns (series) may be produced on one page.

Display ..... This format produces a printout of one series per page and contains all the detail on the base.

Re-entry ..... This format produces a card image tape of the requested series which may be used to create a temporary base. Access to the data entry programs of the CANSIM system is required.

Security option ..... Confidentiality of CANSIM is based primarily on code or passwords. The Directory indicates the status of a series on the data base. Each series is shown as PUBLIC or SECURE.

PUBLIC — as a security level, means that the data are available to the public with no restrictions. However, some of the series may contain one or more SECURE data points.

SECURE — as a security level means that the data are classified as series secured, confidential or secret. The appropriate code or password for retrieving these data may be obtained from the source or originating division. See Inquiries Directory in Series Directory.

Rename ..... This option allows the user to change the MASSAGER number on outputs to a more meaningful name. The use of this option with TABLE format replaces the column number.

Range ..... A set of series and/or matrices to be retrieved.

APPENDICES

APPENDICES

Appendix

1. MASSAGER Tape Format
2. PUBLICATION Tape Format
3. RE-ENTRY Tape Format
4. UTILITY Tape Format
5. RANDOM-D Format
6. Sample of TABLE Format
7. Sample of DISPLAY Format
8. Sample of MASSAGER Manipulation
9. Sample of FANTOM Printout
10. Sample X-11 Seasonal Adjustment Printout
11. Sample of a Publication produced using PUBLICATION Format

IBM – 360 MASSAGER TAPE FORMAT layout maximum record length 12536 bytes
(CREATED BY CANSIM)

Field	Length	Description
1	4 BN	IST1 – 1 number of 8 byte words in KTITLE (always NOTIT * 10)
2	8 AN	LABEL1 – series identification number (MASSAGER)
3	4 BN	M1 – always equal to zero
4	8 AN	NSEC1 – series security code (always blank)
5	8 AN	NOUT1 – date of last update (YY-MM-DD)
6	8 AN	NOPEN1 – blank
7	4 BN	KBEG – beginning year of series (e.g. 1928)
8	4 BN	KEND – ending year of series (e.g. 1970)
9	8 AN	IESEC – edit security code (always '99999999')
10	4 BN	KIND – type of series ANNUAL = 1 QUARTERLY = 4 MONTHLY = 12 WEEKLY SUNDAYS = 51 MONDAYS = 52 TUESDAYS = 53 WEDNESDAYS = 54 THURSDAYS = 55 FRIDAYS = 56 SATURDAYS = 57
11	4 BN	NOTIT – number of cards in KTITLE (N1 +N2 +N3)
12	4 BN	N1 – number of series title cards (always 5)
13	4 BN	N2 – number of source cards (always 2)
14	4 BN	N3 – number of note cards (maximum of 28)
15	4 BN	KSIGDM – number of significant digits SINGLE PRECISION = 6 DOUBLE PRECISION = 10
16	4 BN	KRTDEC – number of places to right of decimal
17	4 BN	ISPDP1 – precision indicator SINGLE PRECISION = 0 DOUBLE PRECISION = 1

IBM – 360 MASSAGER TAPE FORMAT layout maximum record length 12536 bytes – Concluded

Field	Length	Description
18	8*ST1 AN	KTITLE – (variable length, maximum 2800 bytes)
		MATRIX LONG TITLE 300 } 5 cards
		FILLER (blanks) 20
		SERIES SHORT TITLE 50
		FILLER (blanks) 2
		UNIT OF MEASURE 10
		FILLER (blanks) 2
		SCALAR FACTOR 16
		SOURCE INFORMATION 80 } 2 cards
		FILLER (blanks) 20
		CANSIM IDENTIFIER 60
		MATRIX NOTE variable length max. 800 } maximum 28 cards
		FOOTNOTES variable length max. 1440
19	4 BN	IBUF1 – number of 4 byte words in DATA
20	8 AN	LABEL2 – same as LABEL1
21	4 BN	M2 – always equal to one
22	8 AN	NSEC2 – same as NSEC1
23	8 AN	NOUT2 – same as NOUT1
24	8 AN	NOPEN2 – same as NOPEN1
25	4*IBUF1 FSorFD	DATA – data array containing IBUF1 single precision floating point data values or IBUF1/2 double precision floating point data values depending on ISPDP1 (precision indicator) with a maximum length of 9600 bytes.

PUBLICATION TAPE FORMAT

Matrix Record

Field	Length	Description
1-6	6N	Date Date of Publication retrieval
7-12	6N	Matrix number
13-32	20	Series: Blank
33	1	Record type: 'M' (Matrix record)
34-35	2N	Record number: '99'
36-39	4	Agency responsible
40-43	4	Section responsible
44	1N	Crossfoot check
45-344	300	Long title
345-384	40	Short title
385-434	50	Source
435-934	500	Note
935-1054	120X	Footnote 1 } Up to nine footnotes are allowed on each matrix, each footnote can be up to 120 characters.
1055-1174	120X	Footnote 2
1175-1294	120X	Footnote 3
1295-1414	120X	Footnote 4
1415-1534	120X	Footnote 5
1535-1654	120X	Footnote 6
1655-1774	120X	Footnote 7
1775-1894	120X	Footnote 8
1895-2014	120X	Footnote 9
2015-2025	11	(Not used)

Series Record

Field	Length	Description
1-6	6N	Date: Date of publication retrieval.
7-12	6N	Matrix number
13-32	20	Series number
33	1	Record type: 'S' (Series record)
34-35	2N	Record number: Last record is 99
36-39	4	Agency
40-43	4	Section
44-93	50	Title
94-103	10	Unit of measure
104-105	2N	Data mask type
106-108	3N	Variance allowed
109-110	2N	Scalar factor
111-112	2SN	Number of decimal places
113-114	2N	Report frequency
115-117	3N	Expected time of update.
118-2021		Data points
	6N	Date of reference
	6N	Entry date
28	1N	Security code
	4N	Footnotes
	1N	Entry type
	10SN	Data point[1]
2022-2025		(Not used)

[1] There will be 68 data points on each series record.

Card Format: ADD MATRIX, Operation Code AM

Column number	Contents	Explanation
Auto duplicate		
All cards[1] columns 1-27:		
1 - 4	TSDB	System identification.
5 - 8	4 characters maximum, left justified.	Agency responsible for accuracy and security of data.
9-12	4 characters maximum, left justified.	Section of Agency responsible
13-19	Blank	
20-21	AM	Operation code.
22-27	6 digits	Matrix number.
Fields varying from card to card		
Card number:		
28-30	001	Card number.
31-51	Blank	
52	1 or 2	Crossfoot 1 = yes 2 = no.
53-80	Blank	
Card numbers 2-7 inclusive:		
28-30	002 to 007	Title card numbers.
31-80	50 characters maximum, left justified.	Title cards are continuous through 6 cards for a total of 300 characters.
Card number 8:		
28-30	008	Short title card number.
31-70	40 characters maximum	Short title.
71-80	Blank	
Card number 9:		
28-30	009	Source card number.
31-80	50 characters maximum	Source title.
Notes		
Card numbers 011-020:		
28-30	011 to 020	Note card numbers. One note is allowed per Matrix.
31-80	50 characters maximum, left justified.	Enter title continuously up to 500 characters. Do not use hyphens to continue to next card.

[1] There is no card number 10.

Card Format: ADD MATRIX, Operation Code AM — Concluded

Column number	Contents	Explanation
Footnotes		
Card numbers 111-193:		
28	1	1 = footnote — Treated as 3-digit card number
29	1-9	Footnote number — Treated as 3-digit card number
30	1-3	Footnote card number — Treated as 3-digit card number
31-80	50 characters maximum, left justified.	Footnote text — a maximum of 120 characters through 3 cards.
31-50	20 characters maximum	Footnote text — a maximum of 120 characters through 3 cards.

Card Format: ADD SERIES Operation Code (AS) Header

Column number	Contents	Explanation
Auto duplicate		
All cards columns 1-27:		
1-4	TSDB	System identification.
5-8	4 characters maximum, left justified.	Agency responsible for accuracy and security of data.
9-12	4 characters maximum, left justified.	Section of agency responsible.
13-19	Blank	
20-21	AS	Add series operation code.
22-27	6 digits, right justified	Matrix number, punch leading zeros.
Fields varying from card to card		
Card number 001:		
28-30	001	Card number.
31-50	20 digits maximum, left justified.	Series number.
51-52	00 to 12 or blank	Scalar Factor. Blanks are read as zeros.
53-54	9 to 12	Floating point characteristic.
55-56	00 to 99	Data mask type code.
57-59	001 to 998 or 999	Variance allowed, expressed as a per cent, as determined by the data source, or 999 = no edit requested.
60-66	Blank	
67-68	2 digit code	Report frequency.
69-71	3 digits	Expected time of update.
72-80	Blank	
Card number 002:		
28-30	002	Card number.
31-50	20 digits maximum, left justified.	Series number.
51-60	10 characters, left justified	Unit of measure, dollars, bushels, tons, etc.
61-80	20 characters, left justified	**TITLE** — first part.
Card number 003:		
28-30	003	Card number.
31-50	20 digits maximum, left justified.	Series number.
51-80	30 characters, left justified	**TITLE** — Second part.

Card Format: Enter Data, Operation Code (ED)

Column number	Contents	Explanation
Auto duplicate		
All cards columns 1-27:		
1- 4	TSDB	System identification.
5- 8	4 characters maximum, left justified.	Agency responsible for accuracy and security of data.
9-12	4 characters maximum, left justified.	Section of Agency responsible.
13-19	Blank	
20-21	ED	Operation code.
22-27	6 digits, right justified	Matrix No., punch leading zeros.
Fields varying from card to card		
28-30	001 to 999	Card numbers, to be sequential.
31-50	20 digits maximum	Series number, left justified.
51-56	6 digits	Reference date (yr., mo., day).
57-66	10 digits maximum, right justified.	Data.
67	1, 2, 3, 4, or 5	Type of data entry. 1 — Projection into future. 2 — Estimate of current figure. 3 — Current figure (update). 4 — Revision of current figure. 5 — Initial entry of data.
68	1 digit	Security level.
69-70	4 digits, maximum	Footnote indicators. A data point may have upto 4 footnotes.
73	Blank or 9	Blank if variance allowed will be checked by computer. For variance override, enter 9.
74-80	Blank	(Not used)

UTILITY TAPE FORMAT

Field	Length	Description
1- 8	8 AN	MASSAGER SERIES NUMBER
9- 14	6 N	REFERENCE DATE OF FIRST DATA POINT IN RECORD
15- 20	6 N	REFERENCE DATE OF LAST DATA POINT IN RECORD
21-212	192 EF	12 DATA VALUES (E16.10)
213-214	2 N	REPORT FREQUENCY
215-230	16 N	ALL ZEROS

STATISTICS CANADA

RECORD LAYOUT

Data Set Name: RANDOM DIRECTORY

JOB Name: CANSIM

Field	Size	Position	Type	Title
1-115	12	1-1380		Directory entries; 12 bytes per entry,
				115 entries per record, entry types are
				First entry, series entries, last entry.
				FIRST ENTRY
1	4	1-4	BN	Number of entries in series directory
2	4	5-8	BN	Relative record number of the first
				free record on the series file
3	4	9-12	AN	Filler (spaces)
				SERIES ENTRIES
1	8	1-8	AN	Series label (MASSAGER number)
2	4	9-12	BN	LRN · 10,000 + NWD + 10
				LRN — relative record number
				of the first record for
				the series
				NWD — number of four byte words
				used to store all the data
				points in the series
				LAST ENTRY
1	8	1-8	AN	Dummy label (99999999)
2	4	9-12	AN	Filler (spaces)

0600-40: 11-8-70

STATISTICS CANADA

RECORD LAYOUT

Data Set Name: RANDOM FILE

JOB Name: CANSIM

Field	Size	Position	Type	Title
				SERIES RECORD
1	8	1-8	AN	Series label (MASSAGER number)
2	8	9-16	AN	Security code (blank)
3	4	17-20	BN	Beginning year
4	4	21-24	BN	Ending year
5	4	25-28	BN	Series type: ANNUAL – 1
				QUARTERLY – 4
				MONTHLY – 12
				WEEKLY SUNDAYS – 51
				MONDAYS – 52
				TUESDAYS – 53
				WEDNESDAYS – 54
				THURSDAYS – 55
				FRIDAYS – 56
				SATURDAYS – 57
6	4	29-32	BN	Number of significant digits
7	4	33-36	BN	Number of decimal places
8	4	37-40	BN	Precision indicator: single – 0
				double – 1
9	408	41-448		102 single precision floating point data points or 61 double precision floating point data points

0600-40: 11-8-70

STATISTICS CANADA

RECORD LAYOUT

Data Set Name: RANDOM FILE

JOB Name: CANSIM

Field	Size	Position	Type	Title
				SERIES CONTINUATION RECORDS
1	448	1-448		112 single precision floating point data
				points or 56 double precision floating
				point data points

0600-40: 11-8-70

```
AGENCY: DBS6  USER: 2700                    CANSIM DATA RETRIEVAL          DATE: JUN 09 72                    PAGE 001
                                        **** DIAGNOSTIC ERROR LISTING ****

RSC1DBS62700
RSC2RETRIEVE IN TABLE
RSC3000179        1                 PUBLIC 6903  ******
RSC3000179      R1.1                PUBLIC 6901  ******
RSC3             1.1.3
RSC3000179       1.1.6              PUBLIC 6901  ******
RSC3000179       1.1.7              PUBLIC 6901  ******DEPTSTAR
RSC4DBS62700
```

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AGENCY: DBS6  USER: 2700                    CANSIM DATA RETRIEVAL          DATE: JUN 09 72                    PAGE 001
      ************************* SUPPLIED RETRIEVAL COMMAND *************************                GENERATED
          ************************* GENERATED RETRIEVAL COMMAND *****************                    SEQ. NO.

      RSC1DBS62700                                                                                     000001S
      RSC2RETRIEVE IN TABLE                                                                            000002S
      RSC3   179        1                 PUBLIC 6903  ******                                          000003S
          000179        1                 PUBLIC 6903                                                  000001G
      RSC3   179       R1.1               PUBLIC 6901  ******                                          000004S
      RSC3              1.1.3                                                                         000005S
          000179        1.1               PUBLIC 6901                                                  000002G
          000179        1.1.1             PUBLIC 6901                                                  000003G
          000179        1.1.2             PUBLIC 6901                                                  000004G
          000179        1.1.3             PUBLIC 6901                                                  000005G
      RSC3   179        1.1.6             PUBLIC 6901  ******                                          000006S
          000179        1.1.6             PUBLIC 6901                                                  000006G
      RSC3   179        1.1.7             PUBLIC 6901  ******DEPTSTAR                                  000007S
          000179        1.1.7             PUBLIC 6901        DEPTSTAR                                  000007G
      RSC4DBS62700                                                                                     000008S
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AGENCY: DBS6   USER: 2700                          CANSIM DATA RETRIEVAL              DATE:  JUN. 09  1972          PAGE     1

C00179     CONSUMER CREDIT: BALANCES OUTSTANDING OF SELECTED HOLDERS. MONTHLY SUB-TOTALS; TOTAL BY QUARTER: MIL
           LIONS OF DOLLARS, UNADJUSTED FOR SEASONALITY.

           MATRIX NOTE

           CREDIT EXTENDED TO INDIVIDUALS CHIEFLY FOR FINANCING PERSONAL CONSUMPTION EXPENDITURES. EXCLUDES IND
           EBTNESS ARISING FROM RESIDENTIAL MORTGAGES, HOME-IMPROVEMENT AND FULLY-SECURED BANK LOANS. DATA DOES
            NOT INCLUDE INTER-PERSONAL LOANS AND CERTAIN SERVICE CREDIT EXTENDED BY PROFESSIONAL PRACTIONERS, S
           OCIAL CLUBS, ETC. DATA PUBLISHED APPROXIMATELY 55 CALENDAR DAYS AFTER END OF PERIOD.

           COLUMN 1     1                    TOTAL CONSUMER CREDIT MTHLY & QRLY.REPS-BY QRLY.
           COLUMN 2     1.1                  SUB-TOTAL            MONTHLY REPORTERS ONLY
           COLUMN 3     1.1.1                SALES FINANCING COMPANIES - INSTALMENT FINANCING
           COLUMN 4     1.1.2                SMALL LOAN COMPANIES - CASH LOANS UNDER $1,500.
           COLUMN 5     1.1.3                OTHER CONSUMER LOAN COYS. CASH LOANS OVER $1,500.
           COLUMN 6     1.1.6                LIFE INSURANCE COYS' POLICY LOANS
           DEPTSTAR     1.1.7                DEPARTMENT STORES   ACCOUNTS RECEIVABLE
```

AGENCY: DBS6 USER: 2700 — CANSIM DATA RETRIEVAL — DATE: JUN. 09 1972 — PAGE 2

DATE YYMMDD	-- COLUMN 1 -- DOLLARS MILLIONS	FOOT NOTE	-- COLUMN 2 -- DOLLARS MILLIONS	FOOT NOTE	-- COLUMN 3 -- DOLLARS MILLIONS	FOOT NOTE	-- COLUMN 4 -- DOLLARS MILLIONS	FOOT NOTE	-- COLUMN 5 -- DOLLARS MILLIONS	FOOT NOTE	-- COLUMN 6 -- DOLLARS MILLIONS	FOOT NOTE	-- DEPTSTAR -- DOLLARS MILLIONS	FOOT NOTE
690100			7678.5		1212.4	F1	610.9	F3	803.3		556.9		609.7	
690200			7726.1		1206.1	F1	604.8	F3	818.6		560.7		585.9	
690300	9975.8		7848.7		1209.1	F1	600.3	F3	842.9		567.0		578.9	
690400			8013.1		1234.9	F1	598.1	F3	866.7		574.3		583.0	
690500			8196.5		1261.9	F1	595.0	F3	894.4		583.1		584.1	
690600	10523.9		8359.8		1296.1	F1	594.4	F3	926.8		593.7		584.1	
690700			8368.6		1326.0	F1	596.8	F3	951.5		607.3		577.1	
690800			8417.8		1344.2	F1	600.0	F3	992.2		619.5		575.4	
690900	10729.1		8504.5		1355.3	F1	596.2	F3	1008.6		632.1		594.4	
691000			8563.0		1374.4	F1	591.5	F3	1027.6		642.5		608.1	
691100			8611.2		1370.0	F1	589.7	F3	1051.9		651.8		633.6	
691200	11133.6		8743.3		1371.2	F1	596.5	F3	1078.6		659.6		704.6	
700100			8541.9		1228.6	F15	585.9	F3	1063.4		667.1		656.6	
700200			8467.3		1212.3	F15	578.2	F3	1075.7		676.3		631.0	
700300	10805.3		8479.2		1195.9	F15	573.2	F3	1104.8		688.1		620.9	
700400			8583.4		1200.5	F15	566.6	F3	1122.5		700.3		620.3	
700500			8677.7		1207.1	F15	562.3	F3	1162.6		711.5		620.9	
700600	11141.6		8774.5		1217.8	F15	557.6	F3	1185.6		722.9		619.1	
700700			8846.9		1221.9	F15	555.1	F3	1185.1		730.7		600.5	
700800			8865.8		1212.8	F15	550.9	F3	1189.5		737.4		597.5	
700900	11319.3		8925.9		1200.0	F15	540.2	F3	1188.7		744.6		613.6	
701000			8966.2		1188.1	F15	529.7	F3	1184.4		750.9		621.0	
701100			9024.9		1166.6	F15	523.0	F3	1189.6		755.2		644.6	
701200	11705.6		9162.7		1136.2	F15	524.9	F3	1189.9		759.3		720.0	
710100			8646.1		932.5	F156	514.7	F3	952.9	F6	760.9		672.5	
710200			8653.5		930.5	F156	502.7	F3	948.4	F6	763.6		638.2	
710300	11269.5		8708.1		909.5	F156	491.3	F3	957.5	F6	766.7		628.0	
710400			8818.7		905.3	F156	484.1	F3	965.8	F6	767.1		631.1	
710500			9004.9		904.9	F156	477.4	F3	990.8	F6	770.1		629.9	
710600	11798.4		9195.5		906.6	F156	470.3	F3	1001.5	F6	773.2		626.7	
710700			9273.2		903.5	F156	465.9	F3	1010.4	F6	774.6		617.3	
710800			9324.0		902.4	F156	458.6	F3	1017.5	F6	776.3		616.5	
710900	12135.6		9472.5		896.2	F156	450.8	F3	1026.0	F6	779.6		635.2	
711000			9584.3		898.1	F156	442.1	F3	1032.9	F6	780.9		649.5	
711100			9739.3		892.3	F156	436.4	F3	1046.8	F6	780.5		681.4	
711200	12690.4		9872.5		892.0	F156	438.2	F3	1045.0	F6	781.1		754.3	
720100			9900.6		884.6	F156	429.0	F3	1063.9	F6	780.0		744.2	
720200			9879.4		874.9	F156	420.8	F3	1071.4	F6	776.5		701.3	

AGENCY: DBS6 USER: 2700 — CANSIM DATA RETRIEVAL — DATE: JUN. 09 1972 — PAGE 3

MATRIX NUMBER: C00179 — FOOTNOTES REFERENCED IN PRECEDING TABLE PRINTOUT

FOOTNOTE: 1 CONDITIONAL SALES AGREEMENTS HELD IN CONNECTION WITH THE FINANCING OF RETAIL PURCH.OF CONSUMERS'GDS.& REPAID IN INSTALM.

3 DISCONTINUITY: TILL DEC. 1956 SMALL LOANS ACT COVERED CASH LOANS UP TO $ 500 ONLY.

5 DISCONTINUITY: FROM JANUARY 1970 DATA EXCLUDES PASSENGER CARS FINANCED FOR COMMERCIAL PURPOSES.

6 DISCONTINUITY: FROM JANUARY 1971 DATA EXCLUDES UNEARNED FINANCE CHARGES.

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AGENCY: DBS6  USER: 2700                    CANSIM DATA RETRIEVAL          DATE: JUN 09 72                    PAGE 001
                                        **** DIAGNOSTIC ERROR LISTING ****

RSC1DBS62700
RSC2RETRIEVE IN DISPLAY
RSC3000179        1.1                  PUBLIC 6601  ******
RSC3002551        1.1                  PUBLIC 6603  ******
RSC4DBS62700
```

```
AGENCY: DBS6  USER: 2700                    CANSIM DATA RETRIEVAL          DATE: JUN 09 72                    PAGE 001
        ************************* SUPPLIED RETRIEVAL COMMAND ************************                GENERATED
            ************************** GENERATED RETRIEVAL COMMAND *****************                SEQ. NO.

        RSC1DBS62700                                                                                   000001S
        RSC2RETRIEVE IN DISPLAY                                                                        000002S
        RSC3   179        1.1                  PUBLIC 6601  ******                                     000003S
            000179        1.1                  PUBLIC 6601                                             000001G
        RSC3  2551        1.1                  PUBLIC 6603  ******                                     000004S
            002551        1.1                  PUBLIC 6603                                             000002G
        RSC4DBS62700                                                                                   000005S
```

AGENCY: DBS6 USER: 2700 CANSIM DATA RETRIEVAL DATE: JUN 09, 1972 PAGE 1

D 3420 000179.1.1 SCALAR FACTOR: MILLIONS FREQUENCY: MONTHLY

MATRIX TITLE: CONSUMER CREDIT: BALANCES OUTSTANDING OF SELECTED HOLDERS. MONTHLY SUB-TOTALS; TOTAL BY QUARTER: MIL LIONS OF DOLLARS, UNADJUSTED FOR SEASONALITY.

SERIES TITLE: SUB-TOTAL MONTHLY REPORTERS ONLY UNIT OF MEASURE: DOLLARS

DATE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
66-01-00	5550.8	5518.6	5570.4	5642.4	5694.9	5783.2	5823.4	5869.2	5903.5	5951.5	5979.9	6043.3
67-01-00	6002.4	5963.3	5986.8	6082.0	6182.9	6324.0	6344.0	6373.9	6444.4	6551.8	6569.6	6667.5
68-01-00	6696.5	6661.7	6722.9	6856.0	6968.3	7057.9	7154.5	7221.2	7302.8	7389.5	7512.3	7685.0
69-01-00	7678.5	7726.1	7848.7	8013.1	8196.5	8359.8	8368.6	8417.8	8504.5	8563.0	8611.2	8743.3
70-01-00	8541.9	8467.3	8479.2	8583.4	8677.7	8774.5	8846.9	8865.8	8925.9	8966.2	9024.9	9162.7
71-01-00	8646.1	8653.5	8708.1	8818.7	9004.9	9195.5	9273.2	9324.0	9472.5	9584.3	9739.3	9872.5
72-01-00	9900.6	9879.4										

SOURCE: STATISTICS CANADA CONSUMER CREDIT (61-004)

NOTE: CREDIT EXTENDED TO INDIVIDUALS CHIEFLY FOR FINANCING PERSONAL CONSUMPTION EXPENDITURES. EXCLUDES IND EBTNESS ARISING FROM RESIDENTIAL MORTGAGES, HOME-IMPROVEMENT AND FULLY-SECURED BANK LOANS. DATA DOES NOT INCLUDE INTER-PERSONAL LOANS AND CERTAIN SERVICE CREDIT EXTENDED BY PROFESSIONAL PRACTIONERS, S OCIAL CLUBS, ETC. DATA PUBLISHED APPROXIMATELY 55 CALENDAR DAYS AFTER END OF PERIOD.

FOOTNOTE: NIL FOOTNOTES REFERENCED

AGENCY: DBS6 USER: 2700 CANSIM DATA RETRIEVAL DATE: JUN 09, 1972 PAGE 2

B 3001 002551.1.1 SCALAR FACTOR: MILLIONS FREQUENCY: QUARTERLY

MATRIX TITLE: GROSS NEW ISSUES, RETIREMENTS AND NET NEW ISSUES, PAR VALUE, MILLIONS OF CANADIAN DOLLARS, UNADJUSTE D, QUARTERLY

SERIES TITLE: GOVT OF CANADA DIRECT & GTD BONDS-ALL CURRENCIES UNIT OF MEASURE: DOLLARS

DATE	1ST	2ND	3RD	4TH
66-03-00	366 F1	375 F1	588 F1	2,830 F1
67-03-00	256 F1	924 F1	260 F1	2,254 F1
68-03-00	506 F1	1,464 F1	474 F1	4,152 F1
69-03-00	96 F1	528 F1	493 F1	5,323 F1
70-03-00	392 F1	437 F1	837 F1	2,693 F1
71-03-00	724 F1	953 F1	202 F1	3,329 F1

SOURCE: BANK OF CANADA

NOTE: SUBJECT TO REVISION. THESE SERIES COVER ALL PUBLIC AND SOME UNANNOUNCED PRIVATE PLACEMENTS. THE DATA FOR ALL LEVELS OF GOVERNMENT RELATE TO GUARANTEED ISSUES.

FOOTNOTE: 1 EXCLUDES TREASURY BILLS

VAR. NO. 1 CODE = D 400000 FROM 1965 TO 1971 MONTHLY

MERCHANDISE EXPORTS BY SEVEN WAY BREAKDOWN, MONTHLY, UNADJUSTED (RAW) AND ADJUST
ED (SA) FOR SEASONALITY, IN MILLION DOLLARS

ALL COUNTRIES-TOTAL, RAW DOLLARS SCALAR FACTOR 06
SOURCE TRADE OF CANADA EXPORTS, 65-004, DBS
CANSIM SERIES IDENTIFIER 002325.1
NOTE SEVEN WAY BREAKDOWN INCLUDES U.S., U.K., OTHER COU
NTRIES (GP3), OTHER COMMONWEALTH, EEC, JAPAN, LATI
N AMERICA, OTHERS (GP7). DATA PUBLISHED APPROX. 35
CALENDAR DAYS AFTER END OF REFERENCE PERIOD

1965	0.586800000D 03	0.557300000D 03	0.706400000D 03	0.664700000D 03
	0.766300000D 03	0.737200000D 03	0.790000000D 03	0.704200000D 03
	0.719100000D 03	0.790900000D 03	0.924500000D 03	0.819400000D 03
1966	0.741900000D 03	0.692300000D 03	0.802600000D 03	0.773500000D 03
	0.932900000D 03	0.871900000D 03	0.853700000D 03	0.945200000D 03
	0.909300000D 03	0.900600000D 03	0.977900000D 03	0.923600000D 03
1967	0.948300000D 03	0.825600000D 03	0.850600000D 03	0.898800000D 03
	0.106610000D 04	0.103370000D 04	0.960800000D 03	0.911700000D 03
	0.848500000D 03	0.100680000D 04	0.104490000D 04	0.102410000D 04
1968	0.993900000D 03	0.999100000D 03	0.102850000D 04	0.117810000D 04
	0.120460000D 04	0.113420000D 04	0.116060000D 04	0.107620000D 04
	0.113570000D 04	0.125500000D 04	0.120280000D 04	0.125530000D 04
1969	0.113660000D 04	0.111400000D 04	0.122900000D 04	0.119470000D 04
	0.133170000D 04	0.130430000D 04	0.122010000D 04	0.104810000D 04
	0.130040000D 04	0.134900000D 04	0.127210000D 04	0.143120000D 04
1970	0.134520000D 04	0.125370000D 04	0.135400000D 04	0.147370000D 04
	0.149820000D 04	0.154310000D 04	0.147680000D 04	0.121060000D 04
	0.137450000D 04	0.145190000D 04	0.153100000D 04	0.137810000D 04
1971	0.129820000D 04	0.125930000D 04	0.153470000D 04	0.142880000D 04
	0.156970000D 04	0.164550000D 04	0.144070000D 04	0.142780000D 04
	0.148570000D 04	0.154450000D 04	0.162850000D 04	0.155330000D 04

22 11 1 0 2 77 1 0 0 MONTH-TO-MONTH CHANGES IN TOT. EXPORTS
VARIABLE NUMBER 22, OBSERVATIONS FROM 2 TO 77

-29.50000000	149.10000000	-41.70000000	101.60000000
-29.10000000	52.80000000	-85.80000000	14.90000000
71.80000000	133.60000000	-105.10000000	-77.50000000
-49.60000000	110.30000000	-29.10000000	159.40000000
-61.00000000	-18.20000000	91.50000000	-35.90000000
-8.70000000	77.30000000	-54.30000000	24.70000000
-122.70000000	25.00000000	48.20000000	167.30000000
-32.40000000	-72.90000000	-49.10000000	-63.20000000
158.30000000	38.10000000	-20.80000000	-30.20000000
5.20000000	29.40000000	149.60000000	26.50000000
-70.40000000	26.40000000	-84.40000000	59.50000000
119.30000000	-52.20000000	52.50000000	-118.70000000
-22.60000000	115.00000000	-34.30000000	137.00000000
-27.40000000	-84.20000000	-172.00000000	252.30000000
48.60000000	-76.90000000	159.10000000	-86.00000000
-91.50000000	100.30000000	119.70000000	24.50000000
44.90000000	-66.30000000	-266.20000000	163.90000000
77.40000000	79.10000000	-152.90000000	-79.90000000
-38.90000000	275.40000000	-105.90000000	140.90000000

A FANTOM Printout

The data points in the top table were retrieved from CANSIM on a tape in UTILITY format which was read into FANTOM. Four FANTOM operations were used to calculate the percentage changes given in the lower table. FANTOM has about 65 operations.

***** RETAIL TRADE OF CANADA BY PROVINCE, 1968-1969, IN THOUSANDS OF DOLLARS *****

	NFLD.	P.E.I.	N.S.	N.B.	QUEB.	ONT.	MAN.	SASK.	ALTA.	B.C.
JAN 68	30127.0	7157.0	57456.0	45840.0	469202.0	721787.0	86434.0	77516.0	143646.0	197354.0
FEB 68	32309.0	6605.0	57155.0	41812.0	461601.0	655373.0	80965.0	71630.0	144404.0	192802.0
MAR 68	34940.0	9059.0	63907.0	48177.0	518646.0	746602.0	93110.0	87363.0	159841.0	222172.0
APR 68	35398.0	9154.0	69026.0	51213.0	534507.0	767780.0	89888.0	93365.0	159718.0	209299.0
MAY 68	39897.0	9656.0	77743.0	60244.0	589616.0	842077.0	97766.0	91638.0	175191.0	234998.0
JUN 68	44173.0	10013.0	68729.0	56762.0	532285.0	827119.0	97830.0	89540.0	167280.0	229063.0
JUL 68	42645.0	12019.0	75787.0	57178.0	515259.0	813261.0	92360.0	86559.0	161536.0	234363.0
AUG 68	42749.0	9611.0	78226.0	53223.0	534623.0	797364.0	97415.0	96812.0	176854.0	252247.0
SEP 68	38018.0	8685.0	68776.0	52099.0	491191.0	764257.0	87104.0	82191.0	162911.0	232929.0
OCT 68	39186.0	9116.0	72268.0	58339.0	561015.0	864594.0	98675.0	93877.0	172592.0	240675.0
NOV 68	42895.0	10018.0	82863.0	63338.0	606472.0	948004.0	109319.0	96316.0	191036.0	258112.0
DEC 68	49033.0	11005.0	95282.0	65690.0	664225.0	1066975.0	115866.0	105091.0	215199.0	293416.0
JAN 69	31803.0	8192.0	63286.0	50848.0	494696.0	817034.0	88903.0	73610.0	155739.0	216366.0
FEB 69	32335.0	6756.0	62665.0	43455.0	476682.0	713387.0	84580.0	68022.0	158505.0	208174.0
MAR 69	35524.0	8734.0	74890.0	57172.0	533178.0	809809.0	97039.0	80222.0	172280.0	240713.0
APR 69	37097.0	9135.0	68905.0	50636.0	568171.0	845091.0	96151.0	93415.0	182626.0	233284.0
MAY 69	40268.0	9490.0	78287.0	59572.0	620032.0	950009.0	106416.0	93531.0	196029.0	273247.0
JUN 69	43852.0	10141.0	69499.0	55830.0	555025.0	879380.0	101063.0	87871.0	182305.0	247230.0
JUL 69	42765.0	12234.0	75783.0	57354.0	548773.0	866239.0	97217.0	84684.0	171073.0	246175.0
AUG 69	41112.0	9685.0	79776.0	51394.0	543401.0	819836.0	97893.0	94001.0	182203.0	256904.0
SEP 69	39753.0	9346.0	75753.0	54347.0	555435.0	846136.0	95991.0	88432.0	177699.0	254984.0
OCT 69	40419.0	9911.0	77439.0	59178.0	622391.0	921896.0	106003.0	93652.0	191467.0	270336.0
NOV 69	39645.0	10162.0	79048.0	60352.0	600716.0	948687.0	108173.0	86453.0	195469.0	265923.0
DEC 69	54206.0	12794.0	101588.0	67568.0	711292.0	1153763.0	124863.0	103328.0	233321.0	330407.0

***** MONTH-TO-MONTH PERCENTAGE CHANGES IN RETAIL TRADE OF CANADA BY PROVINCE *****

	NFLD.	P.E.I.	N.S.	N.B.	QUEB.	ONT.	MAN.	SASK.	ALTA.	B.C.
JAN 68 TO FEB 68	7.2	-7.7	-0.5	-8.8	-1.6	-9.2	-6.3	-7.6	0.5	-2.3
FEB 68 TO MAR 68	8.1	37.2	11.8	15.2	12.4	13.9	15.0	22.0	10.7	15.2
MAR 68 TO APR 68	1.3	1.0	8.0	6.3	3.1	2.8	-3.5	6.9	-0.1	-5.8
APR 68 TO MAY 68	12.7	5.5	12.6	17.6	10.3	9.7	8.8	-1.8	9.7	12.3
MAY 68 TO JUN 68	10.7	3.7	-11.6	-5.8	-9.7	-1.8	0.1	-2.3	-4.5	-2.5
JUN 68 TO JUL 68	-3.5	20.0	10.3	0.7	-3.2	-1.7	-5.6	-3.3	-3.4	2.3
JUL 68 TO AUG 68	0.2	-20.0	3.2	-6.9	3.8	-2.0	5.5	11.8	9.5	7.6
AUG 68 TO SEP 68	-11.1	-9.6	-12.1	-2.1	-8.1	-4.2	-10.6	-15.1	-7.9	-7.7
SEP 68 TO OCT 68	3.1	5.0	5.1	12.0	14.2	13.1	13.3	14.2	5.9	3.3
OCT 68 TO NOV 68	9.5	9.9	14.7	8.6	8.1	9.6	10.8	2.6	10.7	7.2
NOV 68 TO DEC 68	14.3	9.9	15.0	3.7	9.5	12.5	6.0	9.1	12.6	13.7
DEC 68 TO JAN 69	-35.1	-25.6	-33.6	-22.6	-25.5	-23.4	-23.3	-30.0	-27.6	-26.3
JAN 69 TO FEB 69	1.7	-17.5	-1.0	-14.5	-3.6	-12.7	-4.9	-7.6	1.8	-3.8
FEB 69 TO MAR 69	9.9	29.3	19.5	31.6	11.9	13.5	14.7	17.9	8.7	15.6
MAR 69 TO APR 69	4.4	4.6	-8.0	-11.4	6.6	4.4	-0.9	16.4	6.0	-3.1
APR 69 TO MAY 69	8.5	3.9	13.6	17.6	9.1	12.4	10.7	0.1	7.3	17.1
MAY 69 TO JUN 69	8.9	6.9	-11.2	-6.3	-10.5	-7.4	-5.0	-6.1	-7.0	-9.5
JUN 69 TO JUL 69	-2.5	20.6	9.0	2.7	-1.1	-1.5	-3.8	-3.6	-6.2	-0.4
JUL 69 TO AUG 69	-3.9	-20.8	5.3	-10.4	-1.0	-5.4	0.7	11.0	6.5	4.4
AUG 69 TO SEP 69	-3.3	-3.5	-5.0	5.7	2.2	3.2	-1.9	-5.9	-2.5	-0.7
SEP 69 TO OCT 69	1.7	6.0	2.2	8.9	12.1	9.0	10.4	5.9	7.7	6.0
OCT 69 TO NOV 69	-1.9	2.5	2.1	2.0	-3.5	2.9	2.0	-7.7	2.1	-1.6
NOV 69 TO DEC 69	36.7	25.9	28.5	12.0	18.4	21.6	15.4	19.5	19.4	24.2

Part of an X - 11 Seasonal Adjustment Printouts

The data points in the table below were read into the X - 11 program from a tape in UTILITY format. On the following three pages are five more tables (out of a possible 59) which the X - 11 program can produce.

SEASONAL ADJUSTMENT OF RETAIL TRADE, ALBERTA, 1966-1969 P. 1, SERIES A-424

B 1. ORIGINAL SERIES

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1966	119236.	120622.	137287.	152356.	141087.	146741.	138027.	144040.	145491.	152697.	153686.	196296.	1747566.
1967	132352.	128659.	145199.	153215.	160218.	166382.	144137.	155333.	162316.	161805.	166724.	206876.	1883216.
1968	143646.	144404.	159841.	159718.	175191.	167280.	161536.	176854.	162911.	172592.	191036.	215199.	2030208.
1969	155739.	158505.	172280.	182626.	196029.	182305.	171073.	182203.	177699.	191467.	195469.	233321.	2198716.
AVGE	137743.	138048.	153652.	161979.	168131.	165677.	153693.	164608.	162104.	169640.	176729.	212923.	

TABLE TOTAL- 7859706. MEAN- 163744. STD. DEVIATION- 23661.

SEASONAL ADJUSTMENT OF RETAIL TRADE, ALBERTA, 1966-1969 P. 3, SERIES A-424

C15. FINAL TRADING DAY REGRESSION

	COMBINED WEIGHT	PRIOR WEIGHT	REGRESSION COEFF.	ST.ERROR (COMB.WT.)	T (1)	T (PRIOR WT.)
MONDAY	1.063	1.000	0.063	0.129	0.488	0.488
TUESDAY	1.181	1.000	0.181	0.137	1.328	1.328
WEDNESDAY	0.614	1.000	-0.386	0.140	-2.750*	-2.750**
THURSDAY	0.843	1.000	-0.157	0.121	-1.300	-1.300
FRIDAY	1.667	1.000	0.667	0.127	5.266*	5.266**
SATURDAY	1.518	1.000	0.518	0.136	3.824*	3.824**
SUNDAY	0.114	1.000	-0.886	0.133	-6.688*	-6.688**

* COMBINED WT. SIGNIFICANTLY DIFFERENT FROM 1 AT 1 PER CENT LEVEL
** COMBINED WT. SIGNIFICANTLY DIFFERENT FROM PRIOR WEIGHT AT 1 PER CENT LEVEL

SOURCE OF VARIANCE	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
REGRESSION	12.815	6.	2.136	21.491***
ERROR	3.876	39.	0.099	
TOTAL	16.690	45.		

*** RESIDUAL TRADING DAY VARIATION PRESENT AT THE 1 PER CENT LEVEL

STANDARD ERRORS OF TRADING DAY ADJUSTMENT FACTORS DERIVED FROM REGRESSION COEFFICIENTS

31-DAY MONTHS-	0.35
30-DAY MONTHS-	0.45
29-DAY MONTHS-	0.44
28-DAY MONTHS-	.00

SEASONAL ADJUSTMENT OF RETAIL TRADE, ALBERTA, 1966-1969 P. 4, SERIES A-424

C16. TRADING DAY ADJUSTMENT FACTORS DERIVED FROM REGRESSION COEFFICIENTS

C16A. REGRESSION COEFFICIENTS

MON	TUE	WED	THUR	FRI	SAT	SUN
1.063	1.181	0.614	0.843	1.667	1.518	0.114

C16B. REGRESSION TRADING DAY ADJUSTMENT FACTORS

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1966	99.02	99.12	98.83	103.95	97.93	98.19	100.96	99.54	101.70	99.02	99.32	103.32	100.07
1967	97.93	99.12	100.40	98.77	99.54	101.70	99.02	98.83	103.95	97.93	98.19	100.96	99.70
1968	99.54	102.10	100.96	100.81	100.40	98.77	99.54	103.32	97.26	98.83	103.95	97.93	100.28
1969	100.40	99.12	99.02	99.32	103.32	97.26	98.83	100.96	100.81	100.40	98.77	99.54	99.81

TABLE TOTAL- 4798.40

C16C. REGRESSION TRADING DAY ADJUSTMENT FACTORS, ONE YEAR AHEAD

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1970	103.32	99.12	97.93	98.19	100.96	100.81	100.40	99.02	99.32	103.32	97.26	98.83	99.87

SEASONAL ADJUSTMENT OF RETAIL TRADE, ALBERTA, 1966-1969 P.10, SERIES A-424

D10. FINAL SEASONAL FACTORS

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1966	87.64	86.20	95.97	100.99	104.20	101.45	93.89	99.09	97.10	102.61	104.91	125.74	99.98
1967	87.63	86.41	96.00	100.99	104.15	101.56	93.95	99.01	96.94	102.68	105.10	125.74	100.01
1968	87.59	86.38	95.96	100.95	104.13	101.55	93.95	99.00	96.95	102.70	105.13	125.79	100.01
1969	87.71	86.41	95.80	100.89	104.09	101.48	94.05	99.07	96.92	102.48	105.25	125.57	99.98

TABLE TOTAL- 4799.76 MEAN- 100.00 STD. DEVIATION- 9.65

D10A. SEASONAL FACTORS, ONE YEAR AHEAD

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1970	87.76	86.43	95.72	100.86	104.08	101.45	94.10	99.11	96.91	102.37	105.30	125.46	99.96

SEASONAL ADJUSTMENT OF RETAIL TRADE, ALBERTA, 1966-1969 P.11, SERIES A-424

D11. FINAL SEASONALLY ADJUSTED SERIES

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1966	137403.	141178.	144744.	145131.	138267.	147306.	145608.	146024.	147342.	150290.	147501.	151101.	1741896.
1967	154230.	150224.	150655.	153596.	154542.	161095.	154938.	158741.	161069.	160914.	161557.	162951.	1884513.
1968	164747.	163740.	164980.	156930.	167574.	166765.	172728.	172903.	172784.	170044.	174808.	174695.	2022698.
1969	176864.	185065.	181624.	182250.	182277.	184709.	184045.	182153.	181858.	186091.	188030.	186664.	2201631.
AVGE	158311.	160052.	160501.	159477.	160665.	164969.	164330.	164955.	165763.	166835.	167974.	168853.	

TABLE TOTAL- 7850738. MEAN- 163557. STD. DEVIATION- 14772.

SEASONAL ADJUSTMENT OF RETAIL TRADE, ALBERTA, 1966-1969 P.21, SERIES A-424

F 2. SUMMARY MEASURES

AVERAGE PER CENT CHANGE WITHOUT REGARD TO SIGN OVER INDICATED SPAN

SPAN IN MONTHS	B1 O	D11 CI	D13 I	D12 C	D10 S	A2 P	C18 TD*	F1 MCD	E1 MOD.O	E2 MOD.CI	E3 MOD.I
1	8.64	1.79	1.67	0.61	7.57	0.0	2.24	0.81	8.32	1.21	1.07
2	11.63	2.18	1.76	1.21	10.55	0.0	2.34	1.37	11.75	1.73	1.26
3	12.92	2.47	1.64	1.82	12.88	0.0	1.72	1.95	13.18	2.15	1.08
4	12.35	2.69	1.42	2.42	11.59	0.0	2.28	2.49	12.08	2.50	0.88
5	11.10	3.38	1.60	3.03	10.06	0.0	2.12	3.17	10.93	3.11	1.16
6	9.90	4.02	1.49	3.66	7.73	0.0	1.86	3.83	9.89	3.77	1.10
7	12.48	4.74	1.50	4.32	9.88	0.0	2.34	4.53	12.03	4.47	0.94
9	15.21	5.94	1.64	5.71	14.10	0.0	1.44	5.97	15.43	5.79	1.15
11	12.28	7.47	1.54	7.14	9.70	0.0	1.97	7.42	12.10	7.31	0.90
12	8.11	8.16	1.73	7.85	0.07	0.0	2.25	8.11	7.94	7.99	1.12

RELATIVE CONTRIBUTIONS OF COMPONENTS TO VARIANCE IN ORIGINAL SERIES

SPAN IN MONTHS	D13 I	D12 C	D10 S	A2 P	C18 TD*	TOTAL	RATIO (X100)
1	4.24	0.56	87.54	0.0	7.66	100.00	87.77
2	2.54	1.21	91.71	0.0	4.53	100.00	89.72
3	1.53	1.89	94.88	0.0	1.70	100.00	104.85
4	1.38	3.98	91.12	0.0	3.53	100.00	96.69
5	2.17	7.83	86.19	0.0	3.81	100.00	95.32
6	2.82	17.00	75.79	0.0	4.40	100.00	80.48
7	1.81	15.03	78.76	0.0	4.40	100.00	79.64
9	1.14	13.80	84.18	0.0	0.88	100.00	102.12
11	1.57	33.69	62.17	0.0	2.57	100.00	100.34
12	4.30	88.42	0.01	0.0	7.28	100.00	105.95

AVERAGE DURATION OF RUN	CI	I	C	MCD
	1.68	1.57	47.00	3.00

I/C RATIO FOR MONTHS SPAN

1	2	3	4	5	6	7	8	9	10	11	12
2.75	1.45	0.90	0.59	0.53	0.41	0.35	0.31	0.29	0.26	0.22	0.22

MONTHS FOR CYCLICAL DOMINANCE 3

AVERAGE PER CENT CHANGE WITH REGARD TO SIGN AND STANDARD DEVIATION OVER INDICATED SPAN

SPAN IN	B1 O		D13 I		D12 C		D10 S		D11 CI		F1 MCD	
MONTHS	AVGE	S.D.	AVGE	S.D.	AVGE	S.D.	AVGE	S.D.	AVGE	S.D.	AVGE	S.D.
1	2.17	11.58	0.08	2.31	0.61	0.27	1.40	10.71	0.68	2.36	0.63	0.82
2	3.59	14.15	0.11	2.26	1.21	0.53	2.18	13.31	1.33	2.41	1.23	1.16
3	4.48	15.19	0.10	2.29	1.82	0.75	2.51	15.00	1.92	2.52	1.86	1.49
4	4.84	14.84	0.07	2.15	2.42	0.91	2.27	13.93	2.49	2.46	2.49	1.53
5	5.44	14.49	0.17	2.18	3.03	1.03	2.07	13.36	3.21	2.58	3.16	1.57
6	5.66	11.80	0.16	1.95	3.66	1.11	1.68	10.91	3.83	2.34	3.83	1.54
7	6.78	13.84	0.21	2.22	4.32	1.16	2.06	11.97	4.53	2.55	4.53	1.55
9	8.93	16.98	0.22	2.10	5.71	1.17	2.89	16.23	5.94	2.48	5.97	1.63
11	9.69	17.53	0.31	2.24	7.14	1.15	2.01	15.62	7.47	2.56	7.42	1.69
12	8.11	3.95	0.29	2.38	7.85	1.14	0.00	0.09	8.16	2.72	8.11	1.67

*(TRADING DAY ADJUSTMENT FACTORS WITHOUT LENGTH OF MONTH ADJUSTMENT)

Publication Produced Using PUBLICATION Format

The sample below and that on the next page together make up a table of an annual publication of the National Income and Expenditure Division. The publication is produced by a report-generating program which uses a tape in PUBLICATION format; headings and stubs required for each table are introduced on cards or on tape.

TABLE 28. GROSS DOMESTIC PRODUCT AT FACTOR COST, BY INDUSTRY, 1926-1969 (1) (2)

		1958	1959	1960	1961	1962	1963	1964	1965
		MILLIONS OF DOLLARS							
1	AGRICULTURE	1,712	1,629	1,681	1,519	2,060	2,296	2,089	2,283
2	FORESTRY	375	399	433	383	400	412	469	505
3	FISHING AND TRAPPING	98	87	84	91	107	108	123	130
4	MINES, QUARRIES, AND OIL WELLS	1,152	1,339	1,400	1,421	1,564	1,685	1,855	1,886
5	MANUFACTURING	8,171	8,804	8,976	9,135	10,033	10,793	11,891	13,000
6	CONSTRUCTION	2,003	2,037	2,004	2,038	2,148	2,266	2,513	3,060
7	TRANSPORTATION	2,107	2,331	2,326	2,414	2,477	2,637	2,857	3,048
8	STORAGE	79	83	84	85	82	95	104	104
9	COMMUNICATION	687	763	828	891	979	1,042	1,155	1,245
10	ELECTRIC POWER, GAS, AND WATER UTILITIES	842	886	957	1,049	1,097	1,171	1,252	1,352
11	WHOLESALE TRADE	1,444	1,602	1,656	1,704	1,856	1,957	2,179	2,332
12	RETAIL TRADE	2,451	2,617	2,713	2,757	2,917	3,107	3,437	3,644
13	FINANCE, INSURANCE, AND REAL ESTATE (3)	3,396	3,557	3,794	3,993	4,193	4,572	4,875	5,444
14	PUBLIC ADMINISTRATION AND DEFENCE	2,142	2,243	2,377	2,539	2,702	2,851	3,027	3,268
15	COMMUNITY, BUSINESS, AND PERSONAL SERVICE	3,705	4,060	4,486	4,947	5,399	5,903	6,608	7,488
16	TOTAL	30,364	32,437	33,799	34,966	38,014	40,895	44,434	48,789

(1) FOR A RECONCILIATION BETWEEN GROSS NATIONAL PRODUCT AT MARKET PRICES AND GROSS DOMESTIC PRODUCT AT FACTOR COST, SEE TABLE 3. IT SHOULD BE NOTED THAT THE DATA FOR WAGES, SALARIES, AND SUPPLEMENTARY LABOUR INCOME AND THE INVENTORY VALUATION ADJUSTMENT ARE ON AN ESTABLISHMENT BASIS, WHILE THE DATA FOR NET INCOME OF UNINCORPORATED BUSINESS, INVESTMENT INCOME, AND CAPITAL CONSUMPTION ALLOWANCES AND MISCELLANEOUS VALUATION ADJUSTMENTS ARE ON A COMPANY BASIS.

(2) SEE FOOTNOTE 2, TABLE 30.

(3) INCLUDES OWNERSHIP OF DWELLINGS.

TABLEAU 28 PRODUIT INTERIEUR BRUT AU COUT DES FACTEURS, PAR INDUSTRIE, 1926-1969 (1) (2)

	1966	1967	1968	1969	1970	1971	1972	1973
	MILLIONS DE DOLLARS							
AGRICULTURE	2,921	2,324	2,602	2,918				
SYLVICULTURE	532	545	555	599				
PECHE ET PIEGEAGE	135	135	150	139				
INDUSTRIES EXTRACTIVES	2,011	2,291	2,502	2,639				
INDUSTRIES MANUFACTURIERES	14,183	14,585	15,739	17,040				
CONSTRUCTION	3,642	3,820	4,007	4,314				
TRANSPORTS	3,335	3,571	3,874	4,278				
ENTREPOSAGE	129	133	143	157				
COMMUNICATIONS	1,374	1,501	1,600	1,839				
ELECTRICITE, GAZ ET EAU	1,457	1,575	1,734	1,935				
COMMERCE DE GROS	2,677	2,893	3,059	3,507				
COMMERCE DE DETAIL	4,001	4,344	4,789	5,216				
FINANCES, ASSURANCES ET AFFAIRES IMMOBILIERES (3)	5,816	6,569	7,066	7,714				
ADMINISTRATION PUBLIQUE ET DEFENSE (3)	3,716	4,173	4,532	5,115				
SERVICES	8,664	9,965	11,207	12,740				
TOTAL	54,593	58,424	63,559	70,150				

1) POUR LA CONCILIATION ENTRE LE PRODUIT NATIONAL BRUT AUX PRIX DU MARCHE ET LE PRODUIT INTERIEUR BRUT AU COUT DES FACTEURS, VOIR TABLEAU 3. LES DONNEES RELATIVES A LA REMUNERATION DES SALARIES ET A L'AJUSTEMENT DE LA VALEUR DES STOCKS SE REFERENT AUX ETABLISSEMENTS TANDIS QUE LES DONNEES SUR LE REVENU NET DES ENTREPRISES NON CONSTITUEES EN SOCIETES, LE REVENUE DES PLACEMENTS ET LES PROVISIONS POUR LA CONSOMMATION DE CAPITAL ET LES REEVALUATIONS DIVERSES SE RAPPORTANT AUX COMPAGNIES.

(2) VOIR NOTE 2, TABLEAU 30

(3) Y COMPRIS LES SERVICES IMPUTES DES LOGEMENTS HABITES PAR LEUR PROPRIETAIRE.

OTHER PUBLICATIONS OF THE GENERAL TIME SERIES STAFF

Catalogue Number

11-003 **Canadian Statistical Review.** Monthly. E. and F. Approx. 116 pp.

Summary of current economic indicators in Canada, showing the monthly or quarterly record of all series included for a period of at least two years. Contains a large number of tables of basic statistics and also a special section of many seasonally adjusted major indicators and charts on significant data. Also featured are articles on general economic conditions and on special subjects. Subscribers receive a weekly (11-004), annual (11-206) and other statistical supplements as issued (11-502).

11-004 **Weekly Supplement to Canadian Statistical Review.** Bil. 4 to 8 pp.

Contains most recent figures produced by Statistics Canada and other agencies which are released in the week preceding its issue and which will appear in the following issue of the *Canadian Statistical Review*. Designed to keep users of the *Review* closely informed of the most recent changes in the major statistical series.

Free to *Review* subscribers.

11-206 **Annual Supplement to the Canadian Statistical Review.** Bil. Approx. 75 pp. First issue, 1961.

Contains monthly and quarterly historical records, adjusted and not adjusted for seasonality, of all series in Section I of the *Canadian Statistical Review*. The series extend back to 1946 or, barring this, as far back as the data are available.

CANSIM Manuals and Other Publications

– **CANSIM**: An Introduction to the Canadian Socio-economic Information Management System.

12-530 **CANSIM: Operational Manual for Data Entry.** E. and F. 60 pp.

This manual will be of practical interest only to federal government agencies which store and maintain time series in the CANSIM data base. Users desiring a fuller knowledge of the codes used and the storage methodology will find this volume a useful companion to the "Retrieval Manual" (12-531).

12-531F **CANSIM: Manuel d'extraction et de manipulation des données.**

This is the French edition of *CANSIM: User's Manual for Data Retrieval and Manipulation.*

– **CANSIM: Summary Reference Index. E. and F.**

This index represents a key to the contents of CANSIM, the Canadian Socio-economic Information Management System, and the first step in locating and ordering time series from the system.

– **CANSIM: Series Directory.**

This directory contains titles and other descriptive detail for all series in the CANSIM data base. It is used in conjunction with the *CANSIM: User's Manual for Data Retrieval and Manipulation* (12-531) to order series from Statistics Canada.

In addition to the selected publications listed above, Statistics Canada publishes a wide range of statistical reports on Canadian economic and social affairs. A comprehensive catalogue of all current publications is available free on request from Statistics Canada, Ottawa (Canada), K1A 0T6.